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Security Transition Program Office (STPO)

Technology Transfer of the STPO Process, Tools, and Techniques

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EXECUTIVE SUMMARY

In 1990, with the transition from a defense mission to environmental restoration, the U.S. Department of Energy's (DOE's) Hanford Site began a significant effort to diagnose, redesign, and implement new safeguards and security (SAS) processes. In 1992 the Security Transition Program Office (STPO) was formed to address the sweeping changes that were being identified. Comprised of SAS and other contractor staff with extensive experience and supported by staff experienced in organizational analysis and work process redesign, STPO undertook a series of tasks designed to make fundamental changes to SAS processes throughout the Hanford Site. The goal of STPO is to align the SAS work and organization with the new Site mission.

This report describes the key strategy, tools, methods, and techniques used by STPO to change SAS processes at Hanford. A particular focus of this review is transferring STPO's experience to other DOE sites and federal agency efforts: that is, to extract, analyze, and provide a critical review of the approach, tools, and techniques used by STPO that will be useful to other DOE sites and national laboratories in transitioning from a defense production mode to environmental restoration and other missions. In particular, what lessons does STPO provide as a pilot study or model for implementing change in other transition activities throughout the DOE complex? More broadly, what theoretical and practical contributions do DOE transition efforts, such as STPO, provide to federal agency streamlining efforts and attempts to "reinvent" government enterprises in the public sector? The approach used by STPO should provide valuable information to those examining their own processes in light of new mission requirements.

STPO's objectives are to:

- Match SAS operations to the new Site mission.
- Maintain or improve the protection of special nuclear materials (SNM) and classified information.
- After consolidating SNM and classified information, move to an open site operation, or eliminate controlled entry points to the Hanford Site and move entry control to the facilities onsite.
- Move from an "order-driven" to an "asset-driven" program; that is, reduce multiple layers of compliance for security by targeting specific security and safeguards features according to the nature of the asset.

- Consolidate and integrate similar site security and safety functions and wherever possible, adopt an industrial security model.
- Streamline and automate (where beneficial) SAS processes and eliminate all activities that do not add value, to produce cost-effective SAS programs.
- Change basic SAS culture from directing to assisting line organizations in moving toward a new SAS culture.

STPO has several fundamental characteristics:

- **A Systems Engineering Philosophy:** STPO is focused on radically changing core SAS processes in light of new mission requirements; the philosophy of STPO is based on systems engineering concepts, tools, and techniques, framed within the context of a federal agency environment. (These concepts and STPO's approach are described in Chapter 2.0 of this report.)
- **DOE-Driven/Contractor-Implemented:** STPO is composed of approximately 40 full-time and part-time Site operating contractor staff (Westinghouse Hanford Company, Boeing Computer Services Richland, ICF Kaiser Hanford Company, and MACTEC) and Pacific Northwest Laboratory (PNL) staff who are temporarily assigned to STPO, on leave from their line management responsibilities. The staff members come from different backgrounds (e.g., finance, safety, security, software, engineering, maintenance, and operations), but only about 50 percent are from SAS. This multi-contractor, multi-disciplined configuration is designed to foster interaction across contractor organizations with DOE providing the direction and support to make SAS changes Site-wide.
- **A Self-Funded Program:** Following an initial \$5 million to start the process, funding for STPO is derived from cost savings realized by its own efforts in streamlining and improving SAS; as such, it is a self-funded program.
- **A Transitory Program:** A key feature of STPO is its own transitory nature: the program is designed to terminate at the end of fiscal year (FY) 1994 (September 30). Any remaining action items at the end of FY 1994 will be delegated to DOE and contractor organizations to implement. STPO staff will return to jobs in their respective line organizations or be re-assigned to new positions.

The study research team developed structured interviews to obtain information on STPO's strategy for improvement, organization and management, and supporting tools and techniques. The interviews addressed the following areas:

- STPO strategy for improvement
- organization and management of the STPO process, i.e., oversight and integration of STPO efforts
- tools and techniques used to assess, redesign, and implement new SAS processes
- lessons learned.

Interview groups and respondents were identified through discussions with the STPO project manager and project staff. This effort focused on STPO and PNL staff who were principally involved in the STPO management and research support activities. A total of 26 interviews involving a total of 29 interviewees were conducted (three interviews were conducted with two interviewees).

Implementation issues were identified and analyzed using the interviews of these staff as a primary data source. Since a key aspect of STPO is its philosophy of fundamentally reengineering SAS processes, the narrative analysis of the interviews is supplemented with theoretical perspectives from current government and business management improvement initiatives that shed additional light on systems engineering and process improvement concepts. The major findings and recommendations are presented below.

STRATEGY FOR IMPROVEMENT

STPO adopted a systems engineering philosophy in carrying out its activities. STPO relied on systems engineering to do two things. The first was to use an objective methodology to provide STPO with facts and data about the SAS work processes, and support STPO decisions based on this information. The second was to deflect charges from SAS organizations that the changes were being driven by cost savings alone, or by STPO staff private agendas. In doing so, STPO undertook an extensive review of current operations to identify SAS processes and eliminate redundant activities and, where needed, design new processes consistent with an industrial security model. In transition efforts, it is important to develop a strategy for improvement that involves key stakeholders--Site managers, their employees, and public groups--in defining the strategy as well as implementing it. It is also important to ensure that SAS process stakeholders are brought into the transition process at the right time. In developing a strategy for improvement, cultural issues

(i.e., organizational norms and values) should be considered carefully. In this regard, initial transition efforts should focus on diagnosing and understanding the organizational attributes (key players, structure, and unique attitudes and beliefs) prior to implementing a transition change program. Section 2.1 of the report discusses STPO's strategy for improvement.

ORGANIZATION AND MANAGEMENT

STPO carried out a multi-task effort over two years. This effort required extensive coordination and integration as the STPO transition team and support staff diagnosed SAS activities and began redesigning SAS processes across the Hanford Site. In a transition effort, not only choosing qualified staff, but also implementing mechanisms for integrating activities and improving communication in a highly dynamic and changing environment, is imperative. Successful transition projects under STPO involved extensive communication between transition team members, SAS staff responsible for implementation, and with other affected stakeholders such as mid-level management. While STPO focused on getting the right messages out, they failed to appreciate the effect of potential change on the impacted listeners. Transition efforts should identify communication barriers and develop a work structure and work environment that fosters communication across groups. This may simply involve providing neutral meeting facilities, and stressing iterative and focused small group dialogue over large formalistic presentations. Section 2.2 of the report discusses STPO's organization and management.

TOOLS AND TECHNIQUES

STPO staff used a variety of tools and techniques in their transition efforts. Tools and techniques are defined as practices, specific analytic approaches, and applied concepts. In the STPO transition effort, tools and techniques were used to manage resources; diagnose, baseline, and benchmark SAS activities; redesign processes; and provide outreach or communication to affected groups. These activities included the application of innovative practices and concepts by STPO. The tools and techniques used by STPO were categorized into the following areas:

- project management tools and techniques: used to oversee and keep track of the STPO activities; examples include project management software, the work breakdown structure (WBS), statements of work (SOWs), and task summary sheets
- analytic tools and techniques: used to understand work processes, identify functional requirements, assess risks and formulate decisions; examples include interviews, workshops, focus groups and process design sessions, risk assessment methods, document analysis, activity-based costing, and financial analysis

- outreach tools and techniques: used to highlight the achievements of the transition team; examples include transition team publications, workshops, presentations, and display boards.

The professional judgment of the transition team members and support staff is critical in applying tools and techniques. A number of selection criteria may be used to decide on a particular tool or technique in analyzing a process. In addition to straightforward criteria such as data objectives, time, and resource availability, transition members should try to avoid over- or misapplication of tools such as conducting workshops that are too formalistic and expensive, or over-interviewing staff for information on their activities. The tools and techniques used by STPO are discussed in Section 2.3 of this report.

GUIDELINES FOR FUTURE TRANSITION EFFORTS

Based on the experience of STPO, several specific guidelines should be considered in future transition efforts. The seven guidelines address the following areas:

1. Downsizing versus reengineering: Reduction of staff is downsizing. Reduction of work through process change is reengineering. Do reengineering.
2. Implementation: Do not wait until the new process is perfect. Immediately implement a better process (and cost savings) as analysis continues.
3. The transition change environment: Recognize that the transition environment is inherently complex and charged with emotion. Be sensitive to emotional aspects of the change process.
4. Value-added orientation: Identify your goals, then develop specific measures to meet them.
5. Shared risk and responsibility: Transition team members, DOE and site management, and employees must share risk and responsibility.
6. Change source: Transition management must be champions for change and provide an objective forum to examine proposed changes.
7. Employee expertise in the transition: Know the process, product, and customer.

The guidelines are discussed in Chapter 3.0 of this report.

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ACRONYMS

BCSR	Boeing Computer Services Richland
BPI	Business Process Improvement
BPR	Business Process Reengineering
BSRC	Battelle Seattle Research Center
DOE	U.S. Department of Energy
DOE-HQ	U.S. Department of Energy Headquarters
DOE-RL	U.S. Department of Energy, Richland Operations
DPM	Deputy Project Manager
FY	Fiscal Year
PI	Principal Investigator
PM	Project Manager
PNL	Pacific Northwest Laboratory
RIP	Rapid Implementation Process
RLID	RL Implementation Directive
SAIC	Science Applications International Corporation
SAS	Safeguards and Security
SOW	Statement of Work
STPO	Security Transition Program Office
TAL	Task Area Leader
TL	Task Leader
TPAC	Technology Planning and Analysis Center
TQM	Total Quality Management
WBS	Work Breakdown Structure
WHC	Westinghouse Hanford Company

1.0 INTRODUCTION

The Security Transition Program Office (STPO) undertook a significant two-year, multi-task effort to diagnose, redesign, and implement new safeguards and security (SAS) processes consistent with Hanford's 1990 mission change from strategic nuclear material production to environmental restoration and technology transfer. This report describes the key strategy, tools, methods, and techniques used by STPO to improve SAS processes at Hanford. A particular focus of this review is transferring STPO process knowledge to other U.S. Department of Energy (DOE) sites and federal agency efforts: that is, to extract, analyze, and provide a critical review of the approach, tools, and techniques used by STPO that will be useful to other DOE national laboratories in transitioning from a defense production mode to environmental restoration and other missions. In particular, what lessons does STPO provide as a pilot study or model for implementing change in other transition activities throughout the DOE complex? More broadly, what theoretical and practical contributions do DOE transition efforts, such as STPO, provide to federal agency streamlining efforts and attempts to "reinvent" government enterprises in the public sector?^(a) The approach used by STPO should provide valuable information to those examining their own processes in light of new mission requirements.

1.1 BACKGROUND

With the end of the cold war and the scaling back of U.S. nuclear weapons production, some radical changes are being made. Specifically, DOE is making significant cuts in nuclear defense-related activities while starting to address large-scale environmental remediation problems resulting from 50 years of nuclear defense production activities. DOE-operated nuclear material production sites, such as Hanford, Los Alamos, Fernald, Savannah River, Rocky Flats, and Oak Ridge, are having to make significant changes to their fundamental mission.

The change from high-level national security interests to environmental remediation is having dramatic and long-lasting impacts on the national laboratories and the contractors operating these sites. These facilities are now expected to identify environmental restoration technologies and begin a long (30 years or more) cleanup of sites contaminated by radioactive and other hazardous materials.

(a) See, in particular, David Osborne and Ted Gaebler, *Reinventing Government: How the Entrepreneurial Spirit Is Transforming the Public Sector* (New York: Penguin Books, 1993).

The highest levels of the federal government are placing increased emphasis on DOE sites to improve technology. This is to reduce clean-up costs (for instance, sharing of national laboratory-developed environmental technologies with private industry), and to become more effective and cost-efficient overall. New initiatives calling for "re-inventing government" and business management initiatives, such as Total Quality Management (TQM), Business Process Reengineering (BPR), and Business Process Improvement (BPI), are pointing the way toward which DOE should model itself.^(a)

Hanford's history is based on high-level security and safety concerns. Conceived for the Manhattan Project in World War II (scientists at Hanford developed nuclear material used in the atomic bombs dropped on Hiroshima and Nagasaki), Hanford later became one of the key national laboratories in the nuclear missile production process, supplying finished plutonium and other materials for nuclear missiles. Research-related activities at Hanford also involved high-level security projects. Today, the Hanford Site covers an area in southeastern Washington of about 500 square miles and employs over 17,000 people.

As the new mission transition takes place, many support organizations at Hanford (and throughout the DOE complex) must re-examine their mission, supporting activities, and where they need to change. The transition from high-level nuclear defense to environmental restoration has fundamental consequences for one area in particular at the Hanford Site: SAS. As high-level security requirements are eliminated or reduced, the SAS activities must be changed accordingly. For instance, as the defense mission is scaled back, property protection is focused on government property (not high-level strategic nuclear materials) and, consequently, a lower level of Site security except in limited and protected areas. This is a significant departure from Hanford's historical umbrella of Sitewide, high-level security. Also, as safety risks change, in many areas industrial safety standards must also be changed accordingly.

(a) For more information on business process reengineering, business process improvement, and total quality management principles and techniques, see, for instance, the following sources: Michael Hammer and James Champy, *Reengineering the Corporation* (New York: Harper Collins, 1993); H. James Harrington, *Business Process Improvement: The Breakthrough Strategy for Total Quality, Productivity, and Competitiveness* (New York: McGraw Hill, 1991); W. Edwards Deming, *Out of the Crisis* (Cambridge, MA: Massachusetts Institute of Technology, 1986); Masaaki Imai, *Kaizen: The Key to Japan's Competitive Success* (New York: Random House, 1986); Richard J. Schonberger, *Japanese Manufacturing Techniques--Nine Hidden Lessons in Simplicity* (New York: Free Press, 1982); and Michael Brassard, *The Memory Jogger Plus+* (Milwaukee, WI: ASQC Quality Press, 1989).

In response to these new mission changes, in 1990 DOE and contractor security specialists began reviewing SAS processes throughout the Hanford Site. SAS is a broad area, covering the protection of special nuclear materials, classified information, property protection, and overall Site security. From 1990 to 1992 significant efforts were made to identify opportunities for change within SAS. A contractor team, the Crystal Ball committee, initially reviewed security operations and organizations and made recommendations for change, including reducing security clearances and consolidating nuclear materials and classified information. In 1991, Hanford Manager John Wagoner directed DOE and Hanford contractors to reduce high-level ("Q") clearances by 90 percent. The Crystal Ball committee was tasked with further developing an implementation plan. Yet, the contractor-led activities stalled because substantive change required DOE direction and oversight.

The DOE consequently directed a three-person Transition Review Team to conduct an in-depth review of SAS operations throughout Hanford. This team decided to analyze the SAS work processes across the Site, not the individual SAS organization or operations per se. The Transition Review Team activities resulted in a work breakdown structure (WBS) that established the scope of proposed changes or areas within SAS that ought to be studied for possible changes. Proposed changes included future actions such as consolidating classified document repositories, eliminating redundant or unnecessary compliance activities, and redesigning SAS operations to align with an industrial security model. The Transition Review Team completed the WBS in January 1992. (The WBS is discussed in Section 2.2.2 of this report.)

During the summer of 1992, DOE assembled three contractor teams for an intensive six-week effort to review the Transition Review Team's suggestions. The contractor teams took a more rigorous look at the likelihood that items in the WBS could be completed. They also estimated the savings that could be gained and established a detailed cost and time schedule for the transition process. From this information, the contractor teams consolidated the WBS items and produced task work plan summary sheets.

Given the magnitude of change opportunities identified in these initial assessments, the DOE Richland Operations Office (RL) undertook a two-year program called STPO to assess the change opportunities and implement major changes throughout Hanford's SAS organizations. STPO combined items from the task work plan summary sheets into logical groupings and then developed statements of work (SOWs) for each transition task.

STPO has several fundamental characteristics:

- **A Systems Engineering Philosophy:** STPO is focused on not only improving but radically changing core SAS processes in light of new mission requirements. (STPO's approach is characterized in Chapter 2.0.)
- **DOE-Driven/Contractor Implemented:** STPO is composed of approximately 40 full-time and part-time staff from onsite operating contractors, i.e., Westinghouse Hanford Company (WHC), Boeing Computer Services Richland (BCSR), ICF Kaiser Hanford Company, MACTEC, and the Pacific Northwest Laboratory (PNL), who are temporarily assigned to STPO, on leave from their line responsibilities. This multi-contractor configuration is designed to foster interaction across contractor SAS organizations, with DOE providing the direction and support to make SAS changes Site-wide.
- **Self-Funded Program:** Following an initial \$5 million to start the process, funding for STPO is derived from cost savings realized by its own efforts in streamlining and improving SAS; as such, STPO is a self-funded program.
- **A Transitory Program:** A key feature of STPO is its own transitory nature; that is, the program is designed to terminate at the end of Fiscal Year (FY) 1994 (September 30). Any remaining action items at the end of FY 1994 will be delegated to DOE and contractor SAS organizations for implementation. STPO staff will return to jobs in their respective line organizations or be reassigned to new positions.

Since its inception in 1992, STPO has undertaken a Site-wide review to assess current SAS work and identify change opportunities with extensive support from contract research organizations, primarily PNL's Technology Planning and Analysis Center (TPAC), BCSR, and Science Applications International Corporation (SAIC). SAS changes identified by STPO to date include consolidating security areas and programs, eliminating redundant or overlapping security requirements, simplifying access procedures to the Hanford Site, and using automation where feasible to improve security and lower costs. Initially, highly visible changes were undertaken to signal the magnitude of the transition. Badge checks when leaving certain property protection areas were eliminated. Also, a guardhouse and high-level security equipment were removed when materials from a fuel fabrication facility were consolidated. These actions were intended, in part, to signal a radical change to SAS activities at Hanford. Current STPO efforts are focused on redesigning and implementing change opportunities identified by STPO. Many changes to SAS are under way; additional changes will be handed off to SAS and program staff to implement over

the next several years. The overall objective is to transition SAS from stand-alone nuclear security to a customer-focused industrial security model with small nuclear security areas.

1.2 PURPOSE OF THIS REPORT

This project was designed to assess STPO's approach or strategy for improving SAS activities at the Hanford Site consistent with new mission requirements; to review how STPO organized, managed, and integrated its activities; and to describe particular tools and techniques used by STPO. The results from this review are focused on the STPO process, not outcomes, many of which have yet to be fully determined. Lessons learned as presented here are intended for the benefit of other transition efforts.

STPO products (i.e., technical reports describing the outcomes of tasks) were initially reviewed to identify key approaches and activities. Based on this initial analysis, structured interviews were developed to obtain additional information on STPO's strategy for improvement and supporting tools and techniques. The interviews addressed the following areas:

- STPO strategy for improvement
- organization and management of the STPO process, i.e., oversight and integration of STPO efforts
- tools and techniques used to assess, redesign, and implement new SAS processes
- lessons learned.

Interview groups and respondents were identified through discussions with the project manager and project staff. This effort focused on STPO and PNL staff who were principally involved in the STPO management and research activities. A total of 26 interviews involving a total of 29 interviewees were conducted (three interviews were conducted with two interviewees). Copies of the interview guides are provided in Appendix A of this report.

Implementation issues were identified and analyzed using the interviews of these staff as a primary data source. Since a key aspect of STPO is its philosophy of fundamentally reengineering SAS processes, the narrative analysis of the interviews is supplemented with theoretical perspectives from current government and business management improvement initiatives that shed additional light on reengineering and process improvement concepts. A selected bibliography of reengineering and process improvement literature is provided in Appendix B of this report.

Two limitations in the project approach are noted here. First, due to time and funding constraints, this review was limited to interviews of STPO project staff. Key stakeholders (such as contractor employees and selected public representatives) were not interviewed. A larger review than was originally scoped for this effort would conceivably include stakeholder interviews to solicit their perspectives on the transition effort. Second, although relevant literature on process improvement and related concepts is cited in this review, a full literature review of these concepts and their application in a public sector environment was not included in this effort.

1.3 ORGANIZATION OF THIS REPORT

Chapter 2.0 presents key technology transfer findings and related recommendations:

- strategy for improvement
- organization and management
- tools and techniques.

Based on the analysis and recommendations provided in Chapter 2.0, Chapter 3.0 presents a model for future site transition efforts by addressing the following areas:

- key concepts
- time span to implement change
- transition environment
- management focus
- overseeing the implementation process
- transition resources
- employee roles.

In addition to copies of the interview guides and selected readings contained in Appendices A and B, respectively, summary interview analyses are contained in Appendix C. These analyses form the basis for the findings presented in this report. Status summaries of STPO progress to date appear in Appendix D.

2.0 FINDINGS AND ANALYSIS

This chapter provides a narrative analysis of interview responses collected March 8, 1994, and the week of March 21-25, 1994. The analysis presented here addresses the three major components of a transition effort: strategy for improvement, organization and management, and tools and techniques.

These three components were identified by interview respondents as critical for any transition effort and are consistent with literature on process improvement.^(a) Defining a strategy for improvement is essential for identifying important aspects of the change process involving the organization's change objectives, capacity for change (i.e., motivation and resources), and organizational culture (i.e., the norms and values that are inherent in, and unique to, the personnel within an organization). Organization and management are essential in any transition effort for coordinating the vast amount of information being collected and for integrating the transition activities. Finally, understanding not only specific tools and techniques but also criteria for selecting them is essential for effectively applying the use of different tools and techniques to a particular data-gathering or analysis activity throughout the transition effort. Each of these three major components of a transition effort are discussed below. For each component, key findings from interview respondents and technology transfer recommendations are provided.

2.1 STRATEGY FOR IMPROVEMENT

Strategy for improvement includes key concepts, culture change issues, and stakeholder involvement issues.

2.1.1 Key Concepts

This section presents the interview results and technology transfer recommendations concerning key concepts as they relate to a transition strategy for improvement. At the outset, STPO established several important transition objectives:

- Change the basic SAS operating philosophy from "Defense in Depth" to "Compartmentalization." That is, move from multiple overlappings of SAS requirements to SAS requirements that are "asset-driven," or geared to the needs of asset holders.

(a) Refer to footnote on page 1.2.

- Move to an open site operation, or eliminate controlled entry points to the Hanford Site and move entry control to the facilities onsite.
- Coordinate and integrate security- and safety-driven functions and adopt an industrial security model.
- Streamline and automate processes to produce cost-effective SAS programs.
- Change basic SAS culture from “directive” to a “service” orientation to assist line organizations in moving toward a new owner responsibility culture.

In striving to achieve these objectives, STPO has used a process that consisted of three major elements: understand (or establish a baseline and diagnose current operations); redesign (or develop new or modified processes); and implement (make the recommended changes). Table 2.1 outlines the major features of the STPO approach.

Interview Results Regarding Key Concepts

The key objective of the STPO's mission most frequently mentioned by interview respondents was to facilitate the overall DOE mission transition in the area of SAS; the role of the transition program team was to foster the transition of SAS and to act as a change agent in process improvement and hopefully cost reduction. Ideally, this philosophy was to translate into a disciplined and structured change process to ensure that the transition program was not regarded as a “pet project,” and to ensure that the transition program team was not regarded as being unobjective.

Some of the supporting objectives of STPO cited by respondents were as follows:

- Develop baselines and understand SAS processes.
- Use a structured systems engineering approach.
- Use value-added activities as opposed to compliance-based activities; that is, manage according to asset protection requirements, not DOE Order compliance per se.
- Obtain active support and direction from DOE in the transition effort; not contractor-led.
- Use cross-contractor, multi-disciplined involvement.

Table 2.1. STPO Strategy for Improvement

Elements	Key Features	Outcome
Understand	<ul style="list-style-type: none">• Baseline effort identifies major products, deliverables, and services for each SAS activity, as well as overall cost.• WBS teams identify major cost drivers (requirements).• WBS teams identify specific high-cost products, deliverables, and services.• WBS teams establish how changing Hanford mission affects drivers and challenges scale and cost of activity.	The five steps provide the what, how, why, and cost of status quo.
Redesign	<p>For each driver identified:</p> <ul style="list-style-type: none">• If the operational driver can be eliminated, the SAS product can be eliminated.• If the operational driver is being reduced or scaled back, the process activities can be downsized, consolidated, and streamlined.• If the operational driver is unchanged, determine if activity can be made more effective, efficient, or modified.• WBS teams formulate alternatives for change.	<p>Change opportunities and redesign options are identified.</p> <p>Process change requires information availability. Information ownership is disconnected from organizational control.</p>
Implement	<ul style="list-style-type: none">• WBS team establishes "to be" process design recommendation.• WBS teams develop an implementation strategy and plan.• WBS teams estimate anticipated life-cycle costs and savings associated with proposed change(s).	Change solutions are implemented; life cycle costs and savings are identified.

- Seek employee input and understand their response to change activities.
- Show visible change. Physical changes enforce the cultural commitment to change.
- Move towards site-level (as opposed to contractor-specific) change.

Several key findings related to the strategy for improvement were identified as a result of the interviews. First, although many of these key objectives are complementary, no dominant or consistent themes were identified by the interview respondents. Among respondents there was no clear consensus on key objectives or most important elements of the transition process.

Second, although STPO adopted a systems engineering philosophy, this approach was considered limited because of inherent constraints. That is, STPO had the mandate to examine and change SAS processes, but only go beyond the bounds of SAS into other *external* functional areas such as supporting computer databases or other functional areas *with full coordination and approval of the affected organizations*. There was also concern whether this operating strategy was possible when key external SAS processes could not be changed (e.g., being unable to radically change financing for SAS operations, cost accounting, etc., given DOE and Hanford Site operational requirements that were not within the scope of STPO's purview). Consequently, a spectrum of process improvement strategies were employed when reengineering, was not allowed due to external limitations.

As pointed out in change management literature and as evident in this review, a lack of consensus on key objectives and key concepts among transition team members may result in a great deal of variation in approach and varying perceptions of the transition program improvement strategy. STPO's experience shows the importance of consistently and coherently articulating a vision and supporting objectives, as well as revisiting key concepts throughout the transition process and ensuring that those key concepts are being operationalized.

Respondents thought that problems arose when transition team members were unsure of key objectives (and, consequently, did not develop a task accordingly), or when SAS employees received mixed or confused messages about whether STPO was trying to overhaul processes or improve operations or reduce costs. Respondents also thought that issues arose when STPO's objectives were not supported by SAS management or their staff. Finally, issues regarding the strategy for improvement arose when change was attempted but was not possible because of institutional constraints such as difficult to change DOE Orders or management systems beyond the scope of STPO's purview. For instance, process improvement was perceived by several respondents as being closely related to, if not synonymous with, cost reductions. One key concern raised by some interview respondents was the possibility that some process improvements might result in higher cost, but more effective operations. As one respondent said, "DOE-RL had cut the budget, but STPO was saying, 'Don't worry about money for new ideas.'" A concern was raised that cutting costs could be detrimental to some processes if the process is essentially sound, and improved processes may need a higher level of investment. In the case of SAS transition efforts at the Hanford Site, a sophisticated message was being conveyed: improve processes *and* reduce resource requirements. These objectives are not inconsistent with one another, but they do entail a high degree of iterative dialogue between the transition team, contractor management, and employees. Employees may associate process improvement with cost reduction, or worse, job

elimination, creating fear and reluctance to assist in the transition effort. This reluctance may result in questions of whether the transition team is indeed trying to transition to a new mission or is merely an agent for downsizing.

Third, innovative aspects of STPO's strategy for improvement should be considered. STPO was formed to operate for two years and then terminate. The benefit of this approach is that it forced change into a clearly defined timetable. The downside of this approach is that it raises some concerns about hand-offs and overall implementation effectiveness when STPO is terminated. In particular, there was some concern that, in light of a four- to seven-year time span needed for long-term implementation, STPO expected to make fundamental change in two years. Several respondents recommended that STPO and TPAC staff play a continuing active role in implementing the identified change opportunities.

Another unique aspect of the STPO approach is the funding mechanism it used. Aside from the initial \$5 million funding for startup, continuing cost savings generated by the transition changes have been used to offset the costs of STPO's activities over the past two years. (In fact, very few resource concerns were expressed by interview respondents.) This offers an innovative way to justify transition programs. The possible adverse consequence is that the program may be perceived as hunting for cost reduction opportunities (as it was by some respondents in this review) when, in fact, program staff may be searching for ways to fundamentally improve overall effectiveness of operations.

In conclusion, several respondents thought that the approach should provide an opportunity for revisiting the strategy for improvement over time; simply, an opportunity for transition team members to periodically share experiences and review the overall transition change, to step out of specific activities, and review the overall process. Ideally, this would ensure uniformity in approach and a consistent transition effort. In support of this, interview respondents also thought that a transition effort should provide periodic training and awareness to transition team members, especially as new team members are brought on board.

Technology Transfer Recommendations Regarding Key Concepts

Regardless of what approach a transition team chooses as its strategy for improvement, team members should ensure that their approach is uniform and clearly and consistently articulated not only to other team members (particularly as new staff are added to the transition team), but also to stakeholder communities who will be affected by transition efforts. Ideally, transition team members should periodically revisit their approach to ensure that the strategy for improvement is consistent with the objectives of the transition effort as it evolves.

2.1.2 Culture Change Issues

This section presents the interview results and technology transfer recommendations concerning culture change issues as they relate to a transition strategy for improvement.^(a)

Interview Results Regarding Culture Change Issues

An organization's culture (i.e., the norms and values that are inherent in, and unique to, the personnel within an organization) is an intangible part of any transition process; nonetheless, organizational culture is potentially one of the greatest barriers to a successful transition process and must be recognized and addressed as such. Based on interview responses, culture change issues were regarded by many respondents as being a very important, yet underdeveloped part of the transition process. STPO established a task solely devoted to culture change issues. The goal of this task was to define the SAS culture and identify not only potential barriers to transition efforts, given the SAS culture and interested parties both within and outside of SAS, but also identify potential tactics to assisting culture change as part of the SAS transition process.

One of the most often articulated examples of the cultural barriers that transition team members heard was captured by one SAS manager's comment, "STPO, like Communism, will end." Transition team members recognized that unless their efforts could fundamentally change this type of mindset--of tolerating transition initiatives for awhile and then reverting back to the status quo--lasting improvements in the SAS processes would not be possible. Ultimately, culture change needs to be driven and demonstrated by senior management at DOE and by contractors. This was not evident in STPO's experience at Hanford. Nonetheless, interview respondents thought that the STPO had influenced the SAS culture, and to some extent the larger Hanford culture, to be more conscious of the need to change in response to the Site's new mission. Respondents noted that "STPO sparked change," and that "STPO was instrumental in getting WHC (the prime SAS contractor) to change." Even though the transition team was not able to fully address all of the culture change issues that were identified in the SAS transition effort, respondents thought that as a result of the transition team's efforts, "People are ready to talk *change* now."

(a) For a more comprehensive discussion of culture change issues that were identified in the SAS transition process at the Hanford Site, see STPO reports, *SAS Organizational Culture*, by J. B. Cullen and J. C. Montgomery (1994), and *The STPO Vision for Hanford SAS*, by J. C. Montgomery (1993).

Technology Transfer Recommendations Regarding Culture Change Issues

Based on the literature on transition processes and change management, as well as responses from the interviews conducted for this report, several strategies for addressing culture change issues in a transition effort are recommended as part of the strategy for improvement.

First, transition teams should recognize the important role organizational culture plays in any transition effort. Adequate time and resources should be devoted to assessing organization culture and identifying cultural barriers to change at the very beginning of the transition process. One of the most effective ways to effect a change in organizational culture is to change the incentives under which people in the organization are working. People's thinking and behaviors change in response to incentive changes. When people's thinking and behaviors change, the organization's culture changes as a result. Time and resources are necessary to identify and start to change incentives. Transition teams should also recognize that organizational culture is very slow to change. Some researchers state that culture change can take anywhere from four to seven years to evolve.^(a) Again, time is of the essence. For this reason, culture change initiatives need to begin very early on in a transition effort.

Second, when transition team members identify cultural barriers to transition efforts, they need to address cultural barriers to change in a timely and honest manner. Sentiments of fear and distrust of the transition process should be anticipated in any transition effort. Transition team members need to recognize that the less people know and understand about the motivations behind, and the envisioned outcomes of, a change effort, they will be more resistant towards those transition efforts. Again, transition team members need to have a consistent, coherent articulation of their vision for the transition process and the supporting objectives of that effort. This is not only to ensure that the transition team is taking consistent approaches to transition, but also to ensure that people in an organization affected by those transition efforts are receiving a consistent message about the goals and likely outcomes of the transition effort. People in the affected organization need consistent information to allay fears about the changes going on around them.

Finally, transition team members need to underscore achievements made by the transitional organization during the transition effort. Tangible symbols of change affect culture change in a positive sense by showing people that change within an organization is indeed taking place and that improvements to a process can be made. One of the most important symbols of change within the

(a) See footnote on previous page (Cullen and Montgomery, 1994).

SAS organization at the Hanford Site was the removal of the guardhouses--a symbol of more open access to the Site. This symbol provided tangible evidence that people at the Site were responding to Hanford's new mission and that the status quo was no longer applicable. Such symbols facilitate culture change by showing people that change from the status quo is possible. To reiterate what one interview respondent mentioned, as a result of the transition team's efforts "people are ready to talk *change* now."

2.1.3 Stakeholder Involvement Issues

This section presents the interview results and technology transfer recommendations concerning stakeholder involvement issues as they relate to a transition strategy for improvement. For purposes of this report, a *stakeholder* is considered anyone who will be affected by the transition efforts and has a stake in the outcomes. Stakeholders may be managers at different levels within an organization, whose roles and responsibilities might change as a result of the transition efforts. Stakeholders may also be employees within an organization, whose jobs may change or livelihoods may be lost as an organization goes through a transition. Finally, stakeholders may be personnel outside of the transitioning organization, such as customers, competitors, unions, or regulatory agencies who have an interest in transitions taking place within an organization. Accordingly, four classes of stakeholder were identified by STPO: (1) upper management (DOE-HQ, DOE-RL, and contractor senior management); (2) middle management (SAS line managers and supervisors); (3) SAS staff directly affected; and (4) those indirectly affected. In the STPO experience, upper management was often the champion for change, while middle management challenged the need for change and spoke for individual organizations. To some extent, directly affected SAS staff supported change despite its impact. Indirectly affected staff often found that for them change meant a loss of their status.

Interview Results Regarding Stakeholder Involvement Issues

Interview responses regarding stakeholder involvement were grouped into three categories:

- the need for employee involvement and consensus
- the need for upper- and mid-level management buy-in
- the timing of stakeholder involvement.

Interview respondents thought employee involvement was one of the most effective elements of the SAS transition effort at the Hanford Site. For the most part, interviewees thought that the

transition team did a good job of getting contractor employees involved in the transition process. There was lack of consensus, however, about whether the level of employee involvement was adequate. Employees from the various Hanford contractors involved in the transition process usually served as information providers about various SAS processes and the SAS culture. Some respondents thought that there was "no adequate mechanism for employee involvement" in the SAS transition process. In other words, employees should have been able not only to provide baseline information about SAS processes and culture, but also to work more closely with transition team members in determining what changes to the process could and should be made. This would allay concerns expressed by some respondents that employee suggestions and input went into a "black hole."

One respondent stated that the "authority to make change must be given to those [doing] the changing." Such involvement might have allayed some transition team members' later fears about how readily changes would be implemented once the STPO was phased out. Team members reasoned that had employees been more involved in crafting the changes to be implemented, the employees might be more invested in seeing that the changes were indeed eventually put into place. One respondent stated that "more ownership in implementation requires more up-front work" on the part of the transition team. These concerns have been addressed in several subsequent and currently ongoing STPO task activities. Most notably, STPO is conducting "Design Process Sessions" that are small working groups comprised of SAS staff (subject matter experts), facilitators, and DOE staff who are jointly working on developing process requirements and detailed design procedures for a proposed new Hanford Site entry services. They meet frequently (up to several times weekly) away from their routine job environment. Several respondents considered these small-group sessions as providing a constructive work environment that, in contrast to workshops with many participants, provided targeted work objectives and a manageable work group size (approximately ten people total).

The importance of involving various levels of managers from the different contractor organizations on the Hanford Site was also cited by interview respondents as an important part of the transition team's strategy for improvement. Respondents characterized both DOE and contractor management acknowledgment and support of the need for change as "essential." Although a few respondents stated that the transition team "should have gained more mid- and upper-level management commitment," there was a general consensus among respondents that attempts to get upper-level management buy-in to the transition effort were made iteratively throughout the transition process. Equally strong, however, was the consensus that getting such buy-in from mid-level managers was very difficult, and that the lack of mid-level manager buy-in potentially jeopardized efforts to implement proposed changes within SAS. In almost every workshop or

design session with employee participation, it became apparent that while the employees strongly supported radical change in the work processes, their management disagreed with the need and speed for radical change. Respondents stated that "transitions need middle management commitment" and that "mid-level management is where contention arises." Inasmuch as middle management is viewed as the "spokesmen" for the affected organizations, their attitudes toward change are regarded as the organizations' attitude. However, in reality, these spokesmen spoke only for the middle management class, not for the organization as a whole. In sum, political issues arising among DOE mid-level managers were seen as significant barriers to transition efforts. As a result, respondents therefore recommended that it is critical to obtain mid-level management support prior to seeking employee involvement in transition efforts, because the managers will have a significant influence on employee participation and ultimate implementation of recommended changes.

Finally, although interview respondents agreed that getting stakeholder involvement from contractor employees and managers was important, there was some disagreement about the appropriate timing for such involvement. For example, one respondent stated that "stakeholder involvement was done too soon in some instances" during the transition process. Despite the transition team's desire to have employee input into the transition process, team members recognized some of the difficulties such input can bring; in particular, conflicting opinions early on in the transition process and unwieldy decisionmaking unless involvement is structured effectively. One respondent commented that "gaining consensus was a big problem." The main difficulty in using employees to gain consensus on identifying areas of potential change within SAS was trying to get employees to agree on the types of changes that needed to be made. Other respondents argued that managers were not involved early enough in the transition process, and that this was one reason some upper-level managers and many mid-level managers were resistant to agreeing to buy in to the transition effort.

Technology Transfer Recommendations Regarding Stakeholder Involvement Issues

Transition teams addressing stakeholder involvement issues in a transition effort should consider upper-level managers, mid-level managers, and employees. The experience of the transition team members at the Hanford Site underscores the need to differentially involve management and employees. For example, upper-level managers at DOE and in contractor organizations are likely to support transition efforts that result in more efficient operations and cost savings. In fact, upper-level managers wanted change in SAS work processes at the Hanford Site in order to reduce the resources required. Therefore, it is critical that DOE management direct and support the

transition team, communicate this support to contractor organizations, and convince the contractor management to support the transition team efforts. The transition team, in turn, should ensure that they have executive management support before the transition process begins. Then the transition team should assist upper-level management as much as possible in understanding the transition efforts and keeping upper-level managers informed of the transition team's accomplishments and implementation issues.

Transition teams should be selective in involving contractor mid-level management in the transition effort. (Initially, STPO tried to actively involve mid-level management but met strong resistance because most mid-level managers could not separate the need to change work processes from the need to cut jobs and staff.) After beginning the transition process, the transition team should tell mid-level managers what the transition team is planning, but not expect them to actively participate. In some instances, the transition team can identify mid-level managers who are willing to embrace change themselves. These managers should be left within their line organizations (rather than recruited onto the transition team) to actively start and champion change. Ultimately, the best way to identify these managers is through self-selection. Managers who are willing to embrace change are likely to present themselves and their ideas when they hear that transition efforts are being considered. When such mid-level managers are identified, it is imperative that the transition team provide a forum for these managers to participate meaningfully in the transition process, for instance, by involving the managers in process redesign and by soliciting this select group for their perspectives and insights on needed change opportunities.

Transition teams should actively involve employees in defining the strategy for process improvement. In the STPO experience, employees showed more enthusiasm for change than their mid-level managers and came to transition workshops despite a lack of management support. STPO estimated that, as a general rule among employees, 20 percent to 30 percent embraced change from the beginning, even if it meant they would lose their jobs when changes were implemented. Since employees know the work processes intimately, it is critically important for employees to play a major role in the transition process, not only as subject matter experts but also as architects for change. Future transition efforts will be extremely difficult without tapping the skill and expertise of employees as well as involving them in defining the strategy for process improvement. The transition team for the Hanford SAS transition effort accomplished this level of involvement, in part, by involving employees in diagnosing, redesigning, and implementing changes. However, gaining such employee involvement also means recognizing the need to develop a strategy for addressing employee training needs up-front so that employees can play an active role in

diagnosing and redesigning work processes. In other words, employees need a clear mechanism for becoming and staying involved in a transition effort.

Finally, transition teams should think carefully about when it is appropriate to seek stakeholder involvement during the transition process. Having a few stakeholder representatives work with the transition team to identify possible changes that need to be made might be more effective early on in the transition effort than seeking broad consensus on the need for change. Question why stakeholder involvement is being sought: is it for consensus building or for detailed process redesign? If it is for consensus building, then decisionmakers--that is, those responsible for functional areas to be analyzed--need to be brought into the process. Later on in the process, however, it is important to have those who will ultimately be responsible for change implementation--the employees themselves--participate actively in analyzing and redesigning processes and, consequently, taking ownership of the changes.

2.2 ORGANIZATION AND MANAGEMENT

Organization and management includes the transition team members' roles and responsibilities, the work structure, and issues of task activity integration and communication.

2.2.1 Transition Team Member Roles and Responsibilities

This section presents the interview results and technology transfer recommendations regarding STPO and support staff (TPAC) roles and responsibilities. For each task area, the following staff were involved:

STPO Management:

- **Project Manager (PM):** A contractor representative and member of the STPO team who was in charge of overseeing and participating in selected WBS tasks carried out by the contractor (e.g., PNL TPAC) or other consulting support staff. The PM was principally responsible for financial, scheduling, and product oversight.

TPAC Support Staff:^(a)

- Deputy Project Manager (DPM): A member of the PNL contractor support staff who was in charge of coordinating contractor (i.e., PNL TPAC) support to the STPO, as well as overseeing task deliverables and milestones.
- Task Area Leader (TAL): A contractor support staff manager from PNL TPAC or other consulting manager (e.g., such as BCSR or SAIC) who was responsible for managing individual task analytic activities. The TAL acted as a liaison between the PM at the transition program office and other support staff on the transition team who were responsible for carrying out data gathering, analysis, and process redesign activities.
- Task Leader (TL): A contractor support staff member (e.g., from the TPAC) or other consulting staff member involved as the principal investigator (PI) of the analytic activity.

Figure 2.1 illustrates the overall hierarchy used in the SAS transition effort at the Hanford Site.

Interview Results Regarding STPO Project Manager Roles and Responsibilities

In general, interview respondents thought that “the people element [was] key” to the success of the transition effort. Respondents reported that the multi-contractor team approach worked well, and that not only did the transition team consist of a good mix of people, moreover, there was a general professional etiquette among the team members.

Addressing the roles and responsibilities of STPO project managers (PMs) first, interview respondents reported that, ideally, the PM played a very active role in defining oversight and management responsibilities for the transition team members. Actually, there was a great deal of variation in management styles among the PMs on the transition team. The degree to which a PM was integrally involved in a task depended on the PM’s particular management approach and the nature of the task activity. A consensus approach was believed by several respondents to be key: a high degree of involvement in individual task activities, requiring iteration and dialogue with the research staff. Problems with tasks developed when there was not enough direction and oversight from the PM or, on the other extreme, when tasks were too tightly managed, precluding task iteration in a highly dynamic transition environment. Task activities that were regarded most favorably by research staff and PMs were those that involved extensive communication and

(a) Note that this structure represents PNL TPAC support only; other contractor research support structures varied.

Figure 2.1. STPO Hierarchy

dialogue and an iterative work scope process development among all of the task team members; that is, frequent, informal communications appear to be key. Breaking down overly formal reporting relationships was needed to prevent final deliverables that did not satisfy the client (the STPO office or the task PM). That is, tasks in which team members tried to avoid overly formalistic deliverables and reporting requirements, in particular, by having frequent work-in-progress meetings and submitting periodic task findings through "working papers," enjoyed a higher level of PM support and overall satisfaction with the task activities and their outcomes.

In addition to their management responsibilities, the majority of PMs were involved in carrying out (as well as managing and overseeing) SAS activities under the STPO. This responsibility is not surprising, given the PMs' extensive experience with related project management activities at Hanford. Often, small tasks were addressed directly by PMs, while larger tasks entailed obtaining research staff from contractors such as TPAC or other support organizations. There was some question on the part of team members, however, about how desirable it was to have the transition team management actively carrying out task activities. On the one hand, the need for interactive and productive working relationships between research staff and project managers was unanimously called for: the acclaimed projects were those with interactive working relationships between research staff and PMs. On the other hand, there was some question about having PMs split their attention on task-specific activities and overall oversight. There was concern that there was not enough integration across activities and that this may have been due to PMs spending time on specific task activities rather than on integrating task activities across task areas. Consequently, the ideal management-support staff relationship appears to be one in which there is a lot of interaction, strong communication, and clear role definition: the PM advises and oversees, the support staff carry out the work, and inform the PM of activities and issues.

Interview Results Regarding TPAC Support Staff Roles and Responsibilities

Interview respondents reported that TPAC support staff roles evolved throughout the course of the SAS transition project. As staff were brought on to assist the STPO, they would act in several capacities:

- **Task Leader (TL):** A person in this role would often expand his or her responsibilities to address several tasks within a short timeframe, or the person would assume task leadership responsibilities.
- **Task Area Leader (TAL):** A person in this role would often expand his or her responsibilities to oversee several related areas, or would assume leadership in different activity areas.

One role not anticipated for support staff (i.e., PNL TPAC) management was that of mediator between TPAC staff members dedicated to transition activities and contractor management (PNL) when disagreement arose over recommended changes and PNL's response. TPAC is one of several PNL research centers. In addition, as one of several Hanford contractors, PNL has its own SAS organization. TPAC staff were brought onto the SAS transition project as a consultant organization because of their systems engineering and other analytic capabilities. However, change opportunities identified by TPAC staff working on the transition project were not always agreed to by PNL SAS staff, one of the Site organizations ultimately responsible for SAS transition. This issue highlights potential conflicts that may arise if the investigative staff on the transition team are at odds with other line management organizations on change options. Several respondents suggested, as one possible solution to such potential conflicts, that change support analysts should not be affiliated with a site organization in transition. Whether this issue might arise at other DOE sites depends on the consultant staff used to support the transition effort: if they belong to one of several contractors onsite, then potential conflicts probably will arise. The STPO staff largely made up of contractor management and employees, acted as DOE staff, which minimized or eliminated conflicts of interest with their respective organizations.

Technology Transfer Recommendations Regarding Transition Team Member Roles and Responsibilities

Technology transfer recommendations regarding transition team member roles and responsibilities include the following:

- Use task teams.
- Identify team members carefully; consider involving an organizational psychologist on the team to address culture change issues throughout the transition *across* tasks (not as a separate task item).
- Ensure that the transition program office and transition team members have the autonomy to adequately address and implement transition efforts; in other words, get the right people on the transition team and give them a charter for change, adequate funding, and authority.
- Direct analysis staff to succinctly define task activities.
- Prevent conflict of interest in future research staff efforts by involving, incorporating, and addressing stakeholder concerns, and, if necessary, by involving offsite analysts from third-party organizations.

2.2.2 Work Breakdown Structure

In carrying out the SAS transition efforts at the Hanford Site, a WBS based on SAS work activities was used for the various transition activities. Traditionally, a WBS is used to define work that is threaded across organizational boundaries. The STPO WBS followed this definition, but stopped short of binding parts of the work to a contractor or an organization. The WBS deals with work in general, not how it is done by specific organizations. This section presents the interview results and technology transfer recommendations regarding the WBS used by the transition team members. As shown in Figure 2.2, the WBS ignored organizational structures and involved a number of work areas with subtasks logically arranged for each major task activity.

As shown in Figure 2.3, the major WBS task content areas were *analysis*, *systems*, and *transformation*. Analysis tasks involved carrying out interim actions, consolidating activities, conducting cost and risk analyses, and identifying SAS threats and safety concerns. Systems-related tasks involved investigating changes to hardware, software, and facilities. Transformation tasks involved developing organizational and operational changes in programs, policies, and procedures.

Interview Results Regarding the Work Breakdown Structure

Respondents agreed that the WBS was a systematic way to organize and diagram the proposed tasks that would take place under the SAS transition program. The comprehensive WBS clearly showed how tasks were categorized and linked. As the transition effort progressed, the WBS was used as a visible tracking device to indicate the status of completion for each task. Task integration and SOWs, however, were seen as deficiencies in the transition effort. Project managers saw SOWs as being broadly defined "game plans", not "hard and fast" research requirements. Support staff respondents, on the other hand, regarded the SOWs as contractual agreements by which work took place. Since each group was operating under these two different sets of expectations, problems arose in task integration and communication between support staff and project managers. Project management developed expectations based on the broad wording of the areas in the WBS and their accompanying SOWs. They sometimes found that their expectations were not met when a task was completed because a SOW had not been articulated satisfactorily. On the other hand, as work on tasks progressed, support staff within the transition team often found the WBS and SOWs too constraining--in other words, within the confines of the SOWs, the support staff did not perceive that task efforts could be modified to address research needs as the task evolved.

Figure 2.2. Work Breakdown Structure

Figure 2.3. Major Work Breakdown Structure Areas

Consequently, support staff respondents concurred that when SOWs were developed from the areas diagrammed in the WBS, more time and effort should have been devoted to articulating those SOWs.

This experience among transition team members highlights the importance of communication between project management and support staff to develop SOWs that engender realistic expectations and result in useful data for the transition effort. Integration and communication issues are discussed more fully in Subsection 2.2.3 below.

Technology Transfer Recommendations Regarding the Work Breakdown Structure

Technology transfer recommendations regarding the WBS include the following:

- Logically group tasks and activities.
- Be flexible with tasks.
- Map out a strategy to repetitiously feed lessons learned into the transition system.
- Capitalize on accumulated resources and knowledge over time.

To the best of their abilities, transition team members should ensure that if a WBS is used to organize transition task activities, that structure should be dynamic. That is, as transition efforts progress, transition team members should be able to revisit, reorganize, and modify the areas and activities shown in the WBS. The changes should reflect decisions they have made about combining similar tasks, adding supplementary tasks, and deleting unnecessary tasks, based on more accurate information about what types of data are really necessary for the transition effort, which the transition team will gather throughout the process.

2.2.3 Task Activity Integration and Communication

Integration of task activities and communication are critical success factors in any transition effort. This section presents the interview results and technology transfer recommendations regarding task activity integration and communication issues that arose throughout the SAS transition process at the Hanford Site.

Interview Results Regarding Task Activity Integration and Communication

In the SAS transition process there were three principal types of integration: task or cross-task coordination, overall project management, and stakeholder issues management. Integration often depends on the nature of the specific task. Generally, there are several reasons for integrating task activities in a transition effort:

- Results from one task feed into another.
- Several tasks are related to overall effort (e.g., tasks related to the Hanford Site entry control services).
- Duplication of data-gathering efforts, especially efforts involving employee interviews, must be prevented or minimized.
- Stakeholder issue management or coordination with external stakeholders (employees, mid-level management, etc.) is necessary.

According to interview respondents, the mechanics of task activity integration for the SAS transition effort were straightforward. Integration was accomplished through weekly staff meetings, "in-process-reviews" (periodic reviews of project findings and task status), and ad hoc meetings among team members. Communication was carried out by telephone, meetings, electronic mail, and formal correspondence such as letters, memos, and reports/deliverables.

Several integration and communication issues were raised during the interviews:

- Effective task integration depended on frequent, informal, and iterative communication between management and task leaders.
- Physical isolation between management and support staff sometimes hindered the sharing of information and results across tasks.
- Communication was often used for control purposes (verifying costs and schedules); greater emphasis should have been placed on idea sharing, communication of results, and coordination.
- Integration of SAS staff into the transition effort as it progressed was a frequently-voiced concern, and integrating SAS staff into the transition implementation phase was seen as a potentially major issue in the future, once STPO is phased out. The plan is to have a period of six to eight months of sharing the transition team's analysis and recommendations with the

people who will eventually be responsible for implementing SAS job changes. There was a general consensus among interview respondents that transition implementation recommendations not be delegated to contractors ("thrown over the transom") at the end of FY 1994 without some continuing assistance from transition team members.

Interview respondents reported that cross-task integration was a critical concern in the SAS transition process. As shown in Figure 2.4, as WBS tasks were developed, it became apparent, in some cases and less so in others, that there were tasks (e.g., "aa") that could be combined and addressed more effectively by linking the PMs and research staff involved in these efforts. In a complex WBS arrangement, however, it may be difficult to link transition efforts. This may result in duplication of effort, and, in some cases, frustration on the part of employees and mid-level managers, if transition team members keep coming back for the same information that employees and managers have already provided to other members of the transition team. In such a configuration, it may be difficult to achieve the qualities needed in a rapid transition environment: iterative, informal, and highly integrated information. This would argue for a structure that is less formal than the WBS arrangement in highly complex transition efforts.

Figure 2.4. Integrating Activity/Process Knowledge "aa" Across WBS Tasks

In general, respondents thought that integration was very effective at the project management level and at the TAL and TL level. Project managers worked together in the same facility, and support staff worked together at a separate facility. Formally, responsibility for integration lay with project management, but the overall complexity and rapidly changing environment in the transition effort made effective integration between management and support staff difficult. That is, PMs and the DPM were able to communicate effectively, and TALs and TLs were able to communicate effectively. As illustrated in Figure 2.5, however, many respondents identified a need for more effective communication linkages *between* the project managers and the support staff.

Given these concerns, the preferred method of communication to make such linkages was unstructured, frequent, iterative dialogue between transition team management and support staff. Having the transition team members working in proximity to one another away from their normal work environments was also an important related concern: communication in a rapidly changing environment requires breaking down physical barriers to communication deliberately, i.e., getting people working together in the same facility. Effective communication may also require breaking down traditional command-and-control mechanisms (i.e., lengthy report review concurrence cycles, overly formalistic methods of communication and presentation of work) that stand in the way of productive communication. In addition, physically relocating the STPO team helped reduce

Figure 2.5. Communication Link Between Project Managers and Support Staff

potential conflicts with the STPO members' respective contractor management teams. This was not the case with support staff team members who did not relocate and who therefore got caught up in internal concerns with their contractor management.

Technology Transfer Recommendations Regarding Task Activity Integration and Communication

Effective task integration and communication means having transition team members try to communicate findings often and effectively; focusing communication on idea sharing as opposed to control or concurrence per se; and pursuing frequent, informal communication as opposed to formal, infrequent communication.

The environment in which transition teaming arrangements are formed is important, i.e., use facilities that are useful for formal and informal team member meetings as well as for holding workshops and conferences. If transition team members are drawn as representatives from various contractors on a site, it is also important to have a location that removes transition team members from their work environment for the duration of the transition effort.

Finally, it is important to prepare clearly developed and understood expectations for support staff commitment to the transition team effort. Time spent devoted to SAS transition tasks by PNL TPAC support staff varied considerably, depending on the nature of the tasks, and ranged from as low as 10 percent to 100 percent funding from the transition effort for various periods of time. In some cases, STPO project management sought dedicated support staff who would be 100 percent funded throughout the transition effort at the Hanford Site. In future transition efforts, such time dedication may not be possible for support staff if they have other project responsibilities. The issue of time and staff resource dedication suggests that staff support expectations should be addressed up-front when planning transition efforts.

2.3 TOOLS AND TECHNIQUES

This section presents the interview results and technology transfer recommendations regarding tool and technique selection and use for the SAS transition process at the Hanford Site. Tools and techniques are defined as practices, specific analytic approaches, and applied concepts. Tools and techniques were used for project management, identification and analysis of change opportunities, and program outreach in this transition effort. Understanding not only specific tools and

techniques, but also the criteria for selecting them, is essential for effectively applying the use of different tools and techniques to a particular data-gathering or analysis activity throughout the transition effort.

Interview Results Regarding Tools and Techniques

Interview respondents commented on their use of various types of project management, analysis, and program outreach tools. Unless otherwise indicated, the results of the interviews reported in this section apply to all three types of tools and techniques.

Regardless of whether a transition team member sought a project management, analysis, or program outreach tool, respondents reported using similar criteria when deciding on a particular tool or technique to use in a task activity. Table 2.2 summarizes the various criteria that transition team members used throughout the SAS transition process.

Table 2.2. Tool Application Criteria Used

- Resource availability in terms of time, money, research staff expertise (e.g., in survey design)
- Tool application or research environmental constraints
- Task scheduling or timing
- Simplicity of tool use
- Speed of tool use
- Research objectives (task information requirements)
- Data quality objectives
- Project manager/researcher professional judgment
- Guidance from others and individual experience in using a tool
- Sample size of target population
- Sample history (i.e., over-sampling may be an issue as well as employee perceptions of, and reactions to, tool application)

Interview respondents reported that often the deciding factor in tool or technique choice was professional judgment based on prior knowledge of, and experience with, a particular tool or technique. There was also a strong consensus among respondents that, for the most part, the tools and techniques that were used during the SAS transition effort at the Hanford Site were effective and provided useful, necessary data for the transition tasks. Table 2.3 lists the various tools and techniques that respondents reported using. This list categorizes tools in terms of purpose, i.e., project management, analytic, other, and outreach.

Table 2.3. Tools and Techniques Used

Project Management Tools and Techniques <ul style="list-style-type: none"> • Work Breakdown Structure Matrix • Statements of Work (SOW) • Rapid Implementation Process (RIP) • Task Work Plan Summary Sheet • Commitment Tracking Form • Action Tracking System • Handoff Tracking Matrix • Training Sessions (RLID)(a) • Workflow, Review, and Decision Process • Change Control 	Analytic Tools and Techniques <ul style="list-style-type: none"> • Benchmarking • DMR P+ (a software tool) • Workshops • Priority Planning Grid • Baselineing • Functional Decomposition • Interviews • Subject Matter Expert Reviews • Activity-Based Management • Barrier Analysis • Breakthrough Thinking • Decision Diagrams • Decision-Making Analysis • Document Review • Economic Analysis • Flow Diagrams, Process Mapping • Focus Groups • Life-Cycle Costing • Observation • Prototyping • Storyboarding • Survey
Outreach Tools and Techniques <ul style="list-style-type: none"> • Presentations • Workshops (through the participants) • Press Kits • Display Boards • Backgrounders • Reference Materials 	
Other Tools and Techniques <ul style="list-style-type: none"> • Change Events • Software Tools • Scoping Documents • Virtual Organization Concept 	
(a) DOE-RL implementation corrective training on security transition.	

Since most of the task efforts during the SAS transition program were devoted to understanding SAS systems and processes, the bulk of the tools and techniques identified by respondents fell into the *analytic tools and techniques* category. Tools such as baselining, benchmarking, document review, focus groups, functional decomposition, interviews, observation, surveys, and workshops are particularly well-designed to gather a variety of data and to help researchers characterize an organization and its processes. Some of the analytic tools and techniques were also used in later redesign efforts. These tools included breakthrough thinking (or brainstorming), decision diagrams, process mapping, storyboarding, subject matter expert reviews, and workshops (in particular, "design sessions").

Generally, most tools and techniques performed as intended by the STPO transition team. Project management tools and techniques were generally regarded favorably, although one project management tool (XPM) was considered overly complex for novice project managers.

Early workshops were useful for general information and consensus building, but were both too structured and premature for process redesign, because a culture change had not taken root, and the workshop members did not believe that radical change was possible or really desired. According to STPO staff, later workshops and design sessions made remarkable advancements in process redesign. Over time, the workshop participants came to believe that positive change was desired and possible. This eventually resulted in contractors competing with each other to implement good ideas that were generated at the workshop sessions.

Baselining was a major activity in STPO efforts. Baselining involved establishing estimates of SAS staffing levels and operating budgets, as well as later documenting work scope and staff reductions and costs and savings. Baselining current SAS operations was regarded as a necessary activity, but there was a general consensus that too much time and resources were expended in baseline efforts. In particular, several respondents thought that enough baseline information was known to make changes when STPO was established; what was lacking was authority to carry out the changes. Some respondents thought that baseline activities were carried out to more rigorously document what was already known (if imprecisely), and consequently establish greater legitimacy for change recommendations.

The level of precision needed in baseline estimates was a related baseline issue. This concern was also raised in developing implementation recommendations.) As one respondent stated, to paraphrase Voltaire, "The perfect is the enemy of the good." The general concern was that too much time and effort was spent in trying to precisely define SAS personnel, financial, and capital resource levels and expenditures.

On the other hand, several respondents thought that it was difficult to establish useful baseline measures by which to assess STPO's progress because of the rapidly changing SAS environment. In particular, selecting a baseline year was an issue.

Finally, a concern was raised regarding the validity of baseline efforts solely attributable to STPO. Other ongoing initiatives may have also driven changes and should be factored into baseline analyses.

For a more comprehensive list of these tools and techniques, as well as the advantages and disadvantages of each, see Table 2.4 at the end of this section.

Technology Transfer Recommendations Regarding Tools and Techniques

Generally, analytic tools and techniques worked well, but several recommendations should be considered:

- While it is important to develop baseline measures, judgment should be used in determining the type and detail of needed information.
- Workshops may be useful for general information and consensus building initially, but are too structured and time-intensive for process design; use focus groups for specific redesign activities.
- Interviews are time- and resource-intensive, but provide rich details about processes and activities; they also provide face-to-face interaction and an opportunity for transition team members to meet people in the field. Respondents cautioned against "over-interviewing" a target population, however. In the case of the SAS transition effort at the Hanford Site, transition team members sometimes received feedback that some SAS personnel felt that too much of their time was being taken up responding to long interviews, or responding to similar interview questions at different times throughout the transition process timeframe.
- When conducting workshops and interviews, be sure to provide an opportunity in early or initial efforts for "venting" by staff; employees and managers need a forum to voice their concerns and the opportunity to be heard. When interview and workshop participants are allowed to offer their impressions based on individual emotional responses to the transition process, transition team members gain two things: 1) insight into some of the culture change issues that may need to be addressed before a transition effort can be truly successful, and 2) the opportunity to show stakeholders that their concerns are recognized by the transition team.

- Surveys generally did not provide the level of detailed information desired for process redesign; surveys were also hampered by poor response rates in some instances. Several respondents mentioned that careful consideration should be given to the limitations of surveys as opposed to interviews. When surveys were used to reach a large target population, team members often found that it was difficult to have completed surveys returned in a timely manner. Consequently, surveys were not seen as an expedient data-collection tool. Team members also suggested that if surveys were used and their responses were to be ranked or ordered, such scoring should be done in a one-on-one interview setting.
- Benchmarking other programs provided in-depth information on ideal practices; it also showed the SAS community that change was possible by virtue of successful programs elsewhere. When benchmarking, it is imperative to understand one's own current operational context and problems before comparing with other programs. Benchmarking plans are necessary to effectively conduct the activity.

Overall, objective professional judgment is the key to effective tool application.

2.4 SUMMARY OF INTERVIEW RESULTS AND TECHNOLOGY TRANSFER RECOMMENDATIONS

2.4.1 Strategy for Improvement

In summary, the key interview results related to strategy for improvement are as follows:

- There were different viewpoints on change objectives (e.g., transitioning to new mission or merely downsizing).
- There was a generally recognized need for a structured systems engineering approach designed to make changes with employee input and involvement.
- Workforce involvement in the transition effort was highly recommended: employees need to be involved in diagnosing and redesigning processes; they should not be considered solely as a data source.

The key recommendations related to strategy for improvement are:

- Develop a mission and approach that are suited to the organization's objectives and capacity for change.

- Ensure that the mission and approach for transition efforts are clearly defined among team members through team training and education.
- Seek employee involvement to analyze and adopt changes themselves; mid-level management support is critical for involving employees.
- Review the mission and key features of the approach throughout the project.

2.4.2 Organization and Management

In summary, the key interview results related to organization and management are:

- Projects regarded most favorably by management and cross-functional teams involved extensive informal communication and dialogue, and an iterative work scope development process--frequent, informal communications are key.
- A good deal of highly effective interaction and coordination took place at the management and cross-functional team level. In a complex transition effort, it is imperative to integrate effectively *between* cross-functional groups.
- Ideal Roles of Transition Team Management and Team Members:
 - Transition Team Management: actively work with staff in defining clear expectations and products, facilitate research work (but not involved in actually carrying it out); focus is on oversight and integration of the process.
 - Transition Team Members: actively involved with project management in defining work scope and deliverable, providing iterative findings and input, questioning, clarifying expectations, and primarily responsible for carrying out research.

The key recommendations related to organization and management are:

- Ensure that the transition program and transition team members have the authority and autonomy to adequately address and implement transition efforts; in other words, get the right people on the transition team and give them a mandate.
- Consider involving an organizational psychologist on the team to address culture change issues throughout the transition and train transition team members in what to expect when interfacing with people who could be affected by the changes.

- Direct analysis staff to succinctly define task activities.
- Prevent conflict of interest in future research staff efforts by involving, incorporating, and addressing stakeholder concerns, and, if necessary, by involving offsite analysts from third-party organizations.
- Logically group tasks and activities.
- Be flexible with tasks.
- Map out a strategy to iteratively feed lessons learned into the transition system.
- Capitalize on accumulated resources and knowledge over time.
- Use communication tools (e.g., computers and electronic databases) to facilitate communication in transition efforts.
- Have facilities that are useful for formal and informal team member meetings as well as for holding workshops and conferences.
- Clearly define expectations for support staff commitment to the transition team effort.

2.4.3 Tools and Techniques

Finally, the key interview results related to tools and techniques are:

- A variety of tools and techniques were used with varying degrees of success throughout the SAS transition effort. These tools and techniques were used for a variety of purposes; namely, project management, data gathering and analysis, and outreach.
- Generally, professional judgment is the best determinant on the appropriateness of tools.
- In addition to principal benefits of certain tools, secondary benefit of tools should be considered. For instance, interviews provide not only information, but also allow employees to have a face-to-face opportunity to discuss issues with transition team members.

The key recommendations related to tools and techniques are:

- Remember that a variety of tools and techniques can be applied to the same task. In choosing which tool or technique will suit a particular task, be aware of the criteria different tools and techniques meet and use these criteria in your decision-making process.

- When using a target population of stakeholders from which to gather information for the transition effort, ensure that the transition team members make a conscious effort to integrate their task efforts to avoid “over-interviewing” stakeholder representatives.
- Let professional judgment and either individual or collegial prior experience help you in choosing appropriate tools for a transition task.
- Be willing to modify generic tools and techniques as necessary to address dynamic situations that arise during the transition process.

Table 2.4. STPO Tools and Techniques

Tool or Technique	Description	Generic/ Developed for STPO	Highlights, Advantages	Constraints, Disadvantages
Project Management Tools & Techniques				
WBS Matrix (WHC Management Control System)	Work Breakdown Structure: a standard (Westinghouse) process, describes task activities within a program area; see Sections 2.2.2 and 2.2.3.	Generic	Provides an overall structure to the STPO activities; an accepted management approach.	Based on a "stovepipe" model of hierarchically arranged functions; difficult to integrate tasks and activities across functions.
Statements of Work (SOWs)	Used to establish, clarify, and implement task activities.	Generic	Used to clarify general work scope; provides an accepted contract mechanism for transition team support staff.	Contractually-loaded term may hinder dynamic nature of tasks in a transition environment, creating administrative complexity in revising work scope, iterating activities under SOW, and establishing work scope and deliverables as needed.
Rapid Implementation Process	Technique, the goal of which is to use Site resources (DOE and contractor organizations and process) to accelerate completion of action items identified by transition team (STPO).	STPO	Staff commit to identifying an immediate course of action to resolve identified problems; active staff involvement in the process designed to ensure effective implementation.	Implementing changes too quickly may not produce desired final results. If the changes are implemented too quickly without considering cultural issues, they may face a hostile implementation environment.
Task Work Plan Summary Sheet	Summary form of task objectives and milestones.	STPO	Allows quick assessment of task scope.	None.
Commitment Tracking Form	Summary form of task activities and milestones.	STPO	Allows quick assessment of task status.	None.

Table 2.4. (cont'd)

Tool or Technique	Description	Generic/Developed for STPO	Highlights, Advantages	Constraints, Disadvantages
Action Tracking System	An on-line action item, status information system.	Generic	Transition activities generate lots of action items. Tells who has what, and when it is due for completion.	Data entry and timely updates.
Handoff Tracking Matrix	As activities move from the transition team to the normal operations organization, they are tracked.	STPO	Similar to the Action Tracking System, but focused on the receiving organization.	Same as above.
Training Sessions (RLID)	Training sessions on the switch of facilities controlled by security to facilities controlled by the facility manager.	STPO	Confirms the new responsibilities are understood and accepted.	Sometimes both sides are reluctant to make the change.
Workflow, Review, and Decision Process	Describes the transition team process for making decisions.	STPO	Used to open a dialogue and develop a consensus on how transition decisions will be made.	A minority of participants will only acknowledge the process, and will never approve the process.
Change Control	Measures the difference "before" and "after," costs and FTEs, and assures the savings go to direct cleanup activities.	STPO	The savings are either invested in cost-saving equipment and changes, or goes to direct work.	Costs and FTEs are connected to organizations, not work. After reengineering the costs and FTEs are connected to process activities, across organizations.

Table 2.4. (cont'd)

Tool or Technique	Description	Generic/ Developed for STPO	Highlights, Advantages	Constraints, Disadvantages
Analytic Tools & Techniques				
Benchmarking	Assess industry best practices or best processes applicable to own operations. Primarily conducted through trips to companies with quality showcase programs (IBM), industrial security operations (Boeing, Microsoft, Dallas-Ft. Worth International Airport).	Generic	Worked well for number of staff in identifying desired processes; orienting them to key issues; forming group cohesion as part of benchmarking trip. Benchmarking results showed employee stakeholder community that change is possible.	Differences in approach—some benchmarked best practices; others benchmarked best processes; concern that benchmarking done before SAS processes adequately understood, compromising value of such efforts; concern also about comparing industry practices to government activities.
DMR P+ (a software tool)	Structured approach to determine detailed functional process requirements and status of software development team progress for customer management.	Generic	Highly structured approach allows a very deliberative, thorough review.	Time and resource-intensive; useful only for major process redesign, software design.
Workshops	Used for developing options, evaluating alternatives, and consensus building. Usually facilitated by professional facilitator, may or may not involve the development of mission and value statements to "set the stage" for long-term workshops. Duration varies from one day to several weeks. General discussions of problems and alternative solutions.	Generic, adapted as needed	Effective way to cover a range of subjects, integrate SMEs and stakeholders, generate feedback, and gain consensus on options. May incorporate use of number of other tools such as decision making tools, process mapping, and activity based costing. Recommended for initial scoping efforts, in-depth reviews. Resulted in contractor initiated process improvements.	May be overused to diagnose operations; may exhaust resources due to time- and labor-intensive nature of workshops; may fail to capture all participant viewpoints if too many people involved; may take too much participant time and involvement. Not recommended for use in later stages of project.

Table 2.4. (cont'd)

Tool or Technique	Description	Generic/ Developed for STPO	Highlights, Advantages	Constraints, Disadvantages
Priority Planning Grid (risk assessments)	Structured qualitative risk assessment of considered actions and risk and severity of consequent event.	Generic (WHC)	Simple structured method to establish and verify the estimated consequences of considered actions; provides a justification for changing current practices according to risk.	Method may not be acceptable to stakeholders; depends on expertise of risk estimators and sufficient evidence to develop useful probability estimates.
Baselining	Analysis of financial, personnel staffing, and other resource expenditure levels for a given activity or process. Achieved through interviews, document review.	Generic	Essential for establishing "where we are" before making changes; provides an ultimate measure of success.	Need to clearly define baseline parameters, e.g., cost, staff, job task, and qualitative measures on performance. May be difficult to establish baseline parameters; may be time- and cost-consuming if not bounded. May not provide useful measure of progress. Striving for 100% accuracy can lead to time- and cost- overruns. Recommendation: strive for 80% rather than 100% accuracy.
Functional Decomposition	Breaking down a process into discrete steps in order to determine how a process is carried out, and identify process improvement opportunities.	Generic	Structured approach to understand process and outcomes.	Requires extensive knowledge of process, should involve SME in defining and breaking process down; may result in fragmenting overall understanding of "big picture."

Table 2.4. (cont'd)

Tool or Technique	Description	Generic/Developed for STPO	Highlights, Advantages	Constraints, Disadvantages
Interviews (includes meetings, informal discussions)	Structured and unstructured questions used to obtain detailed information on work processes from managers and staff.	Generic	Gets at necessary information—provides an in-depth understanding of processes and attendant problems.	Labor- and scheduling-intensive; expensive; may lead to redundant information gathering if not coordinated effectively. Important to validate information by reporting back to respondents and getting input related to technical accuracy and recommendations (validating technical accuracy and getting input on recommendations should be kept separate).
Subject Matter Expert (SME) review	Input by Subject Matter Experts on work processes, problem definition and structuring.	Generic	Provides best professional judgment and assessment of a process.	SMEs may lack research analytic skills. Usefulness of SMEs depends on good SME/researcher teaming arrangements.
Activity-Based Management	In contrast to traditional department or programmatic budgetary request based on overall FTE and resource needs, Activity-Based Management uses a structured approach to identify 1) cost drivers; 2) resource requirements; 3) work being done; 4) customers; 5) performance measures.	Generic	Provides "true" value, i.e., how much it costs to perform a particular action; provides greater precision in budget estimation than traditional (FTE and capital resource) budgeting estimates. Provides a mechanism for reengineering processes. Also used to integrate mid-level management and employees in process redesign.	May be difficult to reconcile against traditional budgeting mechanisms in place; requires management commitment to reconfigure work process based on activity rather than on historical budget/FTE needs.
Barrier Analysis	Structured approach to identify impediments or barriers to a desired process and outcome.	Generic	Worked well in workshop setting.	Must be able and prepared to apply results from such activities.

Table 2.4. (cont'd)

Tool or Technique	Description	Generic/Developed for STPO	Highlights, Advantages	Constraints, Disadvantages
Breakthrough Thinking (or Brainstorming)	Simply, a means to develop "what if" and ideal scenarios and identify solutions to identified problems.	Generic	Worked well in workshop setting. Resulted in contractor initiated process improvements.	Must be able and prepared to apply results from such activities.
Decision Diagrams	Structured analysis of decision steps in a work flow process.	Generic	Identifies decision steps in a work process.	None.
Decision-Making Analysis	Structured approach to developing and evaluating alternative options or course of action. Involves using various decisionmaking models and hybrids. Define alternatives, develop criteria for evaluating alternatives, rank ordering of alternatives (numeric).	Generic process, many STPO-specific applications and modifications	Structured approach can provide very clear solutions and also provide strong consensus through involving stakeholders in decisionmaking process.	May not adequately account for political and other non-rational exogenous factors.
Document Review (including policy review, DOE Order or policy review, document analysis)	Simply, analyzing documents to obtain desired information such as baseline information, job content analysis, current procedural requirements, etc.	Generic	Useful for reviewing archival information, gaining an understanding of paperwork products, and capturing other needed information.	Probably insufficient by itself as a data-gathering or analytic tool; usually supplemented by interviews, other data gathering techniques.
Economic Analysis	Includes budget analysis to determine costs, cost-benefit analysis to evaluate proposed changes and net savings and costs over time. This analysis is based on organizational costs, not the actual cost of the work.	Generic	Estimates costs for baseline and proposed actions. Advise using FTEs for estimating baseline, and FTEs required after process redesign.	What constitutes "benefits" and "costs" needs to be understood; very difficult to monetize some benefits such as safety or security; identifying a base year to project costs may be difficult.

Table 2.4. (cont'd)

Tool or Technique	Description	Generic/ Developed for STPO	Highlights, Advantages	Constraints, Disadvantages
Flow Diagrams, Process Mapping	Diagram illustrating the sequence or "flow" of a process; a structured approach to lay out or "map" a work process; may involve use of software tool such as MacFlow.	Generic	Identifies work process flow.	None.
Focus Groups (includes Design Sessions and Briefings)	In-depth meetings with key stakeholders and participants on a particular process or issue. Specific analysis, and specific process redesign.	Generic, adapted as needed	Effective way to focus on identified problems for detailed examination, resolution.	Requires a dedicated team if several or more focus group sessions are required.
Life-Cycle Costing	Estimate the cost impacts of a product, process or activity over the life of the product, process or activity.	Generic	Provides a total costs estimate of a given action rather than an annual cost estimate.	None.
Observation	Observing processes in terms of job task performance, activities undertaken in a process, etc.	Generic	Useful for observing process steps first-hand.	May be compromised if those being observed are on "best behavior" or otherwise confound results.
Prototyping	Used in designing new processes or facilities, simply, developing a model or prototype for analysis. Prototyping is also used in software development process to engage users and establish their system expectations.	Generic	Provides a draft or conceptual understanding prior to full-scale development.	None.
Storyboarding	Use of a board and index cards to construct a "story" or sequence of actions and alternatives.	Generic	Effective device for workshops, focus group decision making.	None.

Table 2.4. (cont'd)

Tool or Technique	Description	Generic/ Developed for STPO	Highlights, Advantages	Constraints, Disadvantages
Survey	Structured questions designed to obtain detailed information on work processes and evaluate alternatives; normally not as extensive as interviews.	Generic	Useful for gathering less labor-intensive information than interviews and workshops.	May be used as follow-up to in-depth interviews; poor survey response may compromise overall results and not provide desired substantive information.
Other Tools & Techniques				
Change Events (Symbolic events, semiotics)	More of an approach than a tool per se, project staff employ dramatic, symbolic events to signify new mission, culture change (e.g., tearing down old guard houses to signify security transition).	STPO	Provides clear, compelling evidence of new change; powerful symbolic approach.	May not be sufficient to overcome institutional and culture barriers to change.
Software Tools	Standard project management, analytic, and word processing tools such as Microsoft Project, MacProject, Excel, WordPerfect, XPM, Flowchart Express, etc. Used for a variety of project management and analytic purposes including scheduling, flowcharting, etc.	Generic	Those that are well developed, relatively simple to learn and use are most desired, e.g., Microsoft Project, Excel.	Least desired are those that are difficult to learn and use and have too many unused features, e.g., XPM.

Table 2.4. (cont'd)

Tool or Technique	Description	Generic/ Developed for STPO	Highlights, Advantages	Constraints, Disadvantages
Scoping Document	Provides a mission statement, objectives, overview of work structure, and overview of major task areas.	STPO	Provides a reference document.	May lack detail necessary to serve as a useful guidebook; may not be a "living" document reflecting project evolution.
Virtual Organization Concept	Consider group or network of actors as the organizing factor by process rather than functional alignments with hierarchical chains of command; entails cross-contractor teams working cross-organizationally in a multi-contractor environment. In this case, used as an organizing theme for process change activities.	Generic	Emphasizes looking at process needs independently from current organizational design, important for reengineering processes. Critical tool for implementing or prototyping the new process designs.	Signifies dysfunctionality of current organizational structure and underscores need for reorganization to translate virtual reality into reality.
Outreach Tools & Techniques				
Presentations	Presentations on program accomplishments, usually intended to demonstrate progress and major milestones.	Generic	Useful for increasing awareness of program activities.	May be perceived as "dog and pony show" if program achievements are not accepted; may backfire if audience does not accept or what is being presented or perceives an intent different from the objective.
Workshops	Used in outreach to gather outside perspectives, inform outsiders of new changes and solicit input.	Generic	Used to seek stakeholder involvement.	May be perceived as "dog and pony show" if process is not accepted.
Press Kits	Materials prepared for media distribution.	Generic	Used for media distribution.	Should be developed early on in process.

Table 2.4. (cont'd)

Tool or Technique	Description	Generic/Developed for STPO	Highlights, Advantages	Constraints, Disadvantages
Display boards	Used to illustrate program accomplishments; located at DOE-RL, may be presented at conference poster sessions, etc.	Generic	Work well in showing progress to team members, visitors.	None.
Backgrounders	DOE information bulletins, in the case of STPO, pertaining to STPO program accomplishments.	Generic	Used to illustrate and summarize key features of program approach, program results.	None, should be user-friendly.
Reference materials	Compendium of information resources.	Generic	Used to provide documentation on overall process and achievements.	Should be user-friendly. Need to have a communications plan in place that gathers research results into a useful format for communication through electronic mail, print, or other media.

3.0 GUIDELINES FOR FUTURE TRANSITION EFFORTS

The study team recommends seven general guidelines for future DOE site transition efforts. These guidelines are based on the analysis of STPO's transition experience; that is, process reengineering and process improvement concepts in a public agency/multi-contractor environment.

The seven guidelines address the following areas:

1. Reduction of staff: Reduction of work through process change is reengineering. Do reengineering; not downsizing.
2. Development of new process: Do not wait until the new process is perfect. Immediately implement a better process (and cost savings) as analysis continues.
3. The transition change environment: Recognize that the transition environment is inherently complex and charged with emotion.
4. Value-added orientation: Identify the goals, then develop specific measures to meet them.
5. Shared risk and responsibility: Transition team members, DOE and site management, and employees must share risk and responsibility.
6. Transition management's role: Transition management must be champions for change and provide an objective forum to examine proposed changes.
7. Employee expertise in the transition: Employees must know the process, product, and customer.

The recommended guidelines are described in the following subsections.

3.1 AVOID DOWNSIZING; DO REENGINEERING

Successful transition efforts involve systematically evaluating and reengineering processes as needed. Although the mandate from DOE and contractor upper management may be to reduce resource requirements, the transition team focus should not be on downsizing; the focus should be on radically changing processes consistent with the mission change from strategic nuclear material protection to environmental restoration. Downsizing, in itself, is not successful if obsolete and ineffective processes are still in place, albeit with less staff. Instead, transition teams should focus on process reengineering or process improvement, depending on whether radical or incremental improvements are needed. In most cases staff reductions (downsizing) will be the logical fallout

from the changed work processes. Regardless of the particular reengineering strategy deployed, downsizing, in itself, is a temporary savings if it fails to provide an understanding of work processes and ways to make improvements. The transition team should demonstrate that it is not only eliminating unnecessary activities, but improving work processes.

3.2 SEEK IMMEDIATE RESULTS, BUT PLAN ON THE LONG HAUL

A long time span may be needed to implement major institutional change. Implementing changes too quickly may result in programmatic failure because of high resistance, although waiting too long to implement change will sap the resources and enthusiasm of key actors. Consider realistic timeframes: one to two years to diagnose current activities and redesign current processes, one year to implement the changes, and continuous improvement of processes thereafter. This does not mean long planning and implementation cycles. Rather, try to achieve short-term successes (immediate changes) but recognize that long-term institutional changes must be built successively over a period of several years, and that experimentation and less-than-perfect solutions should be tried.

3.3 RECOGNIZE THE INHERENT COMPLEXITY

Federal agency programs are inherently complex and diverse, e.g., DOE sites with multiple contractors. This makes it unlikely that effective transition program approaches can be developed that are useful without extensive modification over time that must be made by each site's management and employees. The transition spirit or philosophy should be one of shared risk and responsibility between DOE and contractors. It is especially important that the employees themselves (with supportive mid-level managers) be involved in changing as well as diagnosing where changes are needed. Employees know their operations better than anybody else, and mid-level managers control the processes that employees carry out. Accordingly, transition programs should be established by DOE but involve extensive input early on and throughout the process by contractor management, affected employees, and other stakeholders (interested public groups that need to be aware of, and may be affected by, or can benefit from the transition effort). Initial efforts should therefore focus on understanding the organizational context or profile of site organizations in terms of key actors, structure, resources, constraints, and culture. This is essential so that a strategy for incorporating management, employee, and public perspectives can be efficiently incorporated into the transition decision-making process.

3.4 DEVELOP VALUE-ADDED ORIENTATION

New processes should be developed within a sitewide decision-making structure for *all* transition efforts, yet flexible enough to satisfy unique contexts and situations. Specific transition objectives should be framed within the context of particular services or products. This argues for a performance-based approach, with emphasis on having site organizations developing and achieving measurable goals according to their customers' requirements.

Some critical information is needed before this can take place. Employees have to understand their processes (or the steps comprising their service delivery) rather than their particular *functional* area (such as accounting, purchasing, and so on). The focus should therefore be on identifying *process requirements* across site contractor organizations rather than functions internal to each organization.

Identifying processes also requires identifying customer requirements. In a public service environment, multiple (not single) types of customers--or stakeholders--are the norm.^(a) Customers may include immediate DOE overseer, DOE Headquarters (HQ), other contractor organizations onsite, unions, public interest groups, and the general public. The transition objectives should be framed with an understanding of particular customer needs and interests. Objectives such as "Reduce Costs" or "Deliver High Quality Service" are overall objectives that may support the public interest, but are too general to be meaningful. A clear understanding of customer needs is necessary in order to effectively redesign processes most suited to specific needs, and to develop meaningful (specific) performance objectives suited to clearly identified customers.

3.5 SHARE RISK AND RESPONSIBILITY

The transition team should be a partnership, i.e., shared risk and responsibility, with line organizations involved in developing and implementing transition performance objectives and activities. At best, the transition team will be able to develop a broad strategy. Developing a highly detailed plan, however, will result in a long planning cycle; in delays, as critical information to support the plan is gathered; and in continual revision as broad objectives are operationalized over time for specific organizations and operating environments. Consequently, the transition team should focus on developing a broad policy, and work closely with management and employees to facilitate their

(a) James E. Swiss, "Adapting Total Quality Management (TQM) to Government," *Public Administration Review* 52 (4) (1992):356-362.

articulation of the transition policy objectives into their own environment and language. This involves sharing the inherent risks and responsibilities for the transition effort with site managers and their employees.

3.6 CHAMPION CHANGE

The transition team should focus on facilitating the development of performance objectives for process improvement teams, not revamping particular processes. In doing so, a key attribute of the transition team should be to ensure that those implementing new processes have the capacity (i.e., motivation and resources) as well as accountability to make needed changes. This may involve providing *resources* (e.g., funding a workshop or series of design sessions for a process improvement team), providing *expertise* (having support staff assist employees in diagnosing their own operations or providing assistance in self-diagnosing problem areas), or *troubleshooting* particular issues (such as clarifying a DOE Order with DOE-HQ for the process improvement team). Ultimately, the transition team should be champions for change and provide an objective forum to examine proposed changes.

3.7 KNOW THE PROCESS, PRODUCT, AND CUSTOMER

Site management and employees must be given the authority and accountability for developing new processes consistent with mission transition objectives. Line managers and employees who deliver services operate in settings where they are ultimately responsible for the outcome of activities. They should be directly responsible for learning about their process, product, and customers.

APPENDIX A

INTERVIEW GUIDES

APPENDIX A

INTERVIEW GUIDES

Interview Guide STPO Staff

[Notes in *italics* or brackets are explanatory information and prompts for interviewer use only.]

Introduction

We are here to discuss with you STPO activities from your perspective. Our particular focus is on the activities you have carried out and the techniques, tools and methods that you used in doing so. Our purpose is to transfer STPO technology. That is, our goal is to describe how the STPO process worked, identify lessons learned, and offer recommendations for ongoing transition efforts throughout the DOE complex.

After gathering information from STPO and TPAC staff, we will analyze the information and supporting documents, provide STPO with a report on overall lessons learned, and provide recommendations for ongoing DOE efforts. Individual responses will be kept confidential.

1.0 Background

[Fill in as much beforehand as possible]

- 1.1 Name
- 1.2 Job Position Prior to Joining STPO team
- 1.3 Organization
- 1.4 Years in Position Before Joining STPO
- 1.5 Years Working at Hanford Site

2.0 Key Concepts

We would like to get your perspective on key STPO concepts.

- 2.1 From your perspective, please describe what you see as the key features of the STPO mission.
- 2.2 Please define what you consider to be the most important features of a business process re-engineering effort like STPO.

3.0 Activities

This section discusses specific activities in the STPO process.

- 3.1 Are there any specific tools or techniques that you use in carrying out your activities (e.g., project management software, communication techniques such as brainstorming, decisionmaking tools, flow charts, work structuring tools, etc.)?
- 3.2 Were these tools or techniques developed/selected for STPO or do you use them in non-STPO activities as well?

- 3.3 Have you been involved in carrying out (as well as managing or overseeing) SAS activities under STPO? If so, please describe.
- 3.4 What STPO tasks have you been involved in?
- 3.5 How are these tasks structured or organized?
- 3.6 What project activities have you been involved in (e.g., diagnosing SAS operations, baselining activities, identifying change opportunities, etc.)?
- 3.7 Are there any specific tools or techniques that you use in carrying out these project activities (e.g., interviews, surveys, cost-benefit analyses, etc.)?
- 3.8 Were they developed/selected for STPO or do you use them in non-STPO activities as well?
- 3.9 What are the most effective elements of the STPO program from your vantage point?
- 3.10 What techniques or tools have worked well for you?
- 3.11 What techniques or tools have *not* worked well for you?

4.0 Interaction/Coordination

We would like to ask you several questions about your interaction and coordination with other STPO staff.

- 4.1 How do you integrate your activities with other ongoing tasks related to your efforts?
- 4.2 How do you ensure that your tasks aren't done in isolation, or that they are "in synch" with other related activities?

5.0 Lessons Learned/Wrap Up

This is the last section of the interview.

- 5.1 In general, please describe what you consider to be the greatest lessons learned from your involvement in the STPO process. [For instance, if you were asked to do this task at another site, what would you do the same? What would you do differently?]
- 5.2 What sort of advice or recommendations on techniques or approach would you give to *TALs and TLs* carrying out similar transition efforts?
- 5.3 What sort of advice or recommendations on techniques or approach would you give to *DOE upper management* in carrying out similar transition efforts?
- 5.4 What sort of advice or recommendations on techniques or approach would you give to *your colleagues* in carrying out similar transition efforts?

- 5.5 Overall, how well has the process worked?
- 5.6 Do you have any other comments or recommendations on transferring STPO technology?
- 5.7 Do you have any other comments or recommendations that you think would improve our task efforts?

Thank you very much for your time and insights.

Interview Guide TPAC Staff

[Notes in *italics* or brackets are explanatory information and prompts for interviewer use only.]

Introduction

We are here to discuss with you STPO activities from your perspective. Our particular focus is on the activities you have carried out and the techniques, tools and methods that you used in doing so. Our purpose is to transfer STPO technology. That is, our goal is to describe how the STPO process worked, identify lessons learned, and offer recommendations for ongoing transition efforts throughout the DOE complex.

After gathering information from STPO and TPAC staff, we will analyze the information and supporting documents, provide STPO with a report on overall lessons learned, and provide recommendations for ongoing DOE efforts. Individual responses will be kept confidential.

1.0 Background

[Fill in as much beforehand as possible]

- 1.1 Name
- 1.2 Job Position
- 1.3 Name of Organization
- 1.4 Length of Time in [name of organization]
- 1.5 Length of Time at PNL/Hanford Site

2.0 Key Concepts

We would like to get your perspective on key STPO concepts.

- 2.1 From your perspective, please describe what you see as the key aspects of the STPO mission.
- 2.2 Please define what you consider to be the most important features of a transition effort like STPO.
- 2.3 What was your initial role in the STPO project?
- 2.4 Has this role evolved over time, or is it essentially the same?
- 2.5 What percentage of your overall time would you estimate is currently spent on STPO tasks? Is this more, less, or about the same as your level of involvement over the past year?

3.0 Activities

This section reviews the specific tools and techniques you have used in the STPO process. For our purpose, tools include specific actions such as symbolic events designed to influence culture change, management and decisionmaking software used to select, prioritize, track, and review projects, as well as specific techniques such as interviews, workshops, and surveys to understand, redesign, and implement SAS changes.

- 3.1 What STPO tasks have you been involved in? (please identify tasks on the TPAC milestone chart.)
- 3.2 Please summarize the purpose of each task.
- 3.3 Looking at the following diagram (show the STPO process diagram "bubble chart"), you can see that there are four major activity areas in the STPO process: *Understand* (or diagnosis of problem areas), *Redesign* (or analyzing and suggesting changes to SAS operations), *Implementation* (or putting the changes in place), and *Manage* (or overseeing the STPO process). For each of the tasks you were assigned, how would you categorize each task according to this diagram?
- 3.4 Please estimate the percentage of time that you have spent to date in each major activity area (this information will give us a rough understanding of where the majority of your efforts have been focused).
- 3.5 What specific tools or techniques did you use in carrying out these project activities (e.g., interviews, surveys, cost-benefit analyses, etc.)? [If respondent is unsure about whether a tool was used, discuss the activity to determine if a tool was used at all. If the respondent has supporting documentation on a particular activity, request a copy.]
- 3.6 For each tool or technique, was the tool or technique developed/selected solely for the STPO project or do you use them in non-STPO activities as well?
- 3.7 For each tool or technique, please describe the objectives or criteria you used to guide your selection of the particular tool or technique.
- 3.8 What tools or techniques worked well for your STPO activity? Please cite an example of an activity where you used a tool or technique with desired results.
- 3.9 What tools or techniques did *not* work well for your STPO activity? Can you identify why it did not work well? Please cite an example in which a tool or technique was used but the desired outcome was not achieved.

4.0 Interaction/Coordination

We would like to ask you several questions about your interaction and coordination with other STPO staff.

- 4.1 Whom do you report to regarding your STPO activities? How is information communicated? (e.g., through formal communication such as reports or presentations, informal communications, telephone calls, etc.).
- 4.2 Besides your project manager, do/did you interact with others in STPO? Who are these contacts? How often?
- 4.3 In general, how does interaction for your STPO activities take place (through meetings, informal conversation, telephone, written communication)? How often?

- 4.4 How do you integrate your STPO activities with other STPO task leaders or principal investigators who are working on tasks related to your efforts?
- 4.5 How do you ensure that your tasks aren't done in isolation, or that they are "in synch" with other related tasks?

5.0 Lessons Learned/Wrap Up

This is the last section of the interview.

- 5.1 From your perspective, what have been the most effective elements of the STPO process so far?
- 5.2 In general, please describe what you consider to be the greatest lessons learned from your involvement in the STPO process. [For instance, if you were asked to do this task at another site, what would you do the same? What would you do differently?]
- 5.3 What sort of advice or recommendations on techniques or approach would you give to *TALs and TLs* carrying out similar transition efforts?
- 5.4 What sort of advice or recommendations on techniques or approach would you give to *DOE upper management* in carrying out similar transition efforts?
- 5.5 Overall, how well has the STPO process worked?
- 5.6 Do you have any other comments or recommendations on transferring STPO technology?
- 5.8 Do you have any other comments or recommendations that you think would improve our task efforts?

Thank you very much for your time and insights.

APPENDIX B

SELECTED READINGS

APPENDIX B SELECTED READINGS

BUSINESS PROCESS REENGINEERING

Michael Hammer & James Champy, *Reengineering the Corporation: A Manifesto for Business Revolution* (New York: Harper Collins, 1993).

"Attitude Adjustment: Alyeska Embarks on an Ambitious Program to Remake the Way It Does Its Business," *Anchorage Daily News*, Sunday, February 13, 1994.

PROCESS IMPROVEMENT AND TOTAL QUALITY MANAGEMENT

General

H. James Harrington, *Business Process Improvement: The Breakthrough Strategy for Total Quality, Productivity, and Competitiveness* (New York: McGraw Hill, 1991).

W. Edwards Deming, *Out of the Crisis* (Cambridge, MA: Massachusetts Institute of Technology, 1986).

Masaaki Imai, *Kaizen: The Key to Japan's Competitive Success* (New York: Random House, 1986).

General Accounting Office, *U.S. Companies Improve Performance Through Quality Efforts*. Report Number GAO/NSIAD-91-190. (Washington, D.C.: U.S. General Accounting Office, 1991).

Application in Public Sector

David Osborne and Ted Gaebler, *Reinventing Government: How the Entrepreneurial Spirit Is Transforming the Public Sector* (New York: Penguin Books, 1993).

Joseph Sensenbrunner, "Quality Comes to City Hall," *Harvard Business Review* (March-April 1991):64-75.

Robert K. Zentmyer and James A. Zimble, "The Journey from Bureaucracy to TQM," *Quality Progress* (September, 1991):61-66.

Charles A. Bowsher, "Meeting the New American Management Challenge in a Federal Agency: Lessons from the General Accounting Office," *Public Administration Review* 52 (1) (1992):3-7.

Critique

James E. Swiss, "Adapting Total Quality Management (TQM) to Government," *Public Administration Review* 52 (4) (1992):356-362.

David Rajeski, "Beyond TQM: The Search for Strategy and Innovation in the Public Sector" (unpublished manuscript provided by author).

Gilbert Fuchsberg, "'Total Quality' Is Termed Only Partial Success," *Wall Street Journal* October 1, 1992, p. B9.

Graham Sharman, "When Quality Control Gets in the Way of Quality," *Wall Street Journal* February 24, 1992.

Tom Shoop, "Can Quality Be Total?" *Government Executive* (March 1990):20-25.

Ronald Ashkenas and Robert Schaffer, "The Lemmings Who Love Total Quality," *New York Times* May 3, 1992.

Policy Implementation

Walter Williams, *The Implementation Perspective: A Guide for Managing Social Service Delivery Programs* (Berkeley, CA: University of California Press, 1980).

Richard Weatherley and Michael Lipsky, "Street-Level Bureaucrats and Institutional Innovation: Implementing Special-Education Reform," *Harvard Educational Review* 47 (2) (1977):171-197.

Phyllis Ellickson, Joan Petersilia, Michael Caggiano, and Sandia Polin, *Implementing New Ideas in Criminal Justice* (Santa Monica, CA: The Rand Corporation, 1983).

APPENDIX C

INTERVIEW DATA TABLES

APPENDIX C INTERVIEW DATA TABLES

The interview considered a number of open-ended and structured questions. Where relevant or applicable, responses were tabulated and are presented here.

Experience Levels: STPO and TPAC Staff

	Range of Experience	Average Experience	Total Experience (cumulative)
STPO Staff (n=11)			
Years in Position Before Joining STPO	1.5 - 18 years	6 years	69 years
Years at Hanford Site	2 - 25 years	13 years	139 years
TPAC Staff (n=18)			
Years at PNL	2 months - 20 years	6 years	112 years
Years at Hanford Site	0 - 20 years*	7 years	123 years

Some staff located off-site; not working at Hanford Site.

2.1 Mission

Responses regarding understanding and perspective on key concepts of STPO process.

2.1 Key Concepts	
Mission Change	7
PI/Reduce \$	4
Change Agent	3
Not Sure	2
Reduce \$	2
Process Improvement (PI)	2
Understanding/PI	2
Mission Change, etc.	2
Shared Vision	1
Discipline, structure	1
Total	26

2.5 Time Spent on STPO Tasks by Research Staff

2.5 (T)	% time on STPO	More, less, = past	
OTHER 5	85	MORE	
TL 6	25		PROJECT CUT
TAL 7	50	LESS	
TAL 8	100	MORE	
OTHER 9	100		
TAL 10	10	=	
TL 11	0	LESS	
TAL 12	80	=	
TAL 13	35	MORE	
PM 14	0	LESS	
TAL 15	50	LESS	
TL 16	80	MORE	
TL 17	0	LESS	
TAL 18	5	LESS	
TL 23	20	LESS	
OTHER 26A	100	MORE	
OTHER 26B	25	LESS	
AVERAGE	45		

Section 5 lessons learned.

Questions in Section 5 were analyzed differently than the preceding interview guide sections. In contrast with other sections of the interview which were focused on particular areas with structured questions, Section 5 was designed to draw out key overall perspectives and evaluation of the STPO process. The following eight key areas were identified in the narrative analysis and the comments were categorized according to these content areas shown in the table below.

Section 5 Content Themes: Lessons Learned

Topic	Description	Example
Concept	Comments addressing conceptual underpinnings and methodological assumptions in the STPO approach	"Teach customer orientation concept to all personnel"
Organization and Management (O&M)	Comments addressing STPO program structure and way in which activities were carried out and coordinated	"Map out a strategy to feed lessons learned into system iteratively"
Staffing	Comments addressing staffing issues on the STPO project such as use of contractor staff, use of research staff, desired staff capabilities, and teaming	"Make a single overall team to prevent overlapping interviews"
Culture change	Comments addressing organizational culture issues, or norms and values of SAS and other site personnel within the context of the DOE mission transition	"Culture change is an important part of the process"
Communication	Comments addressing (a) intra-STPO communication; (b) communication with SAS staff; (c) communication with contractor management and DOE management	"Frequent communication is essential in a rapidly changing environment"
Tools	Comments addressing the particular use of tools and techniques in the STPO process	"Allow 'venting' before interviewing/workshops"
Product	Comments addressing outcomes of STPO process - oriented specifically toward review process or generally toward overall outcomes. Comment generally focused on outcomes, not process	"Specify report content requirements up-front" and "Changes made by STPO saved more money than data collection effort"
Involvement	Comments addressing involvement of SAS and contractor staff in change efforts	"Get resident experts involved; have people establish ownership"
Evaluation	STPO and TPAC staff evaluations of overall process	"Some tasks very satisfying, others not"

Since the questions in Section 5 were open-ended, responses could (and did) address several topics. 330 comments were categorized out of a total of 156 responses (this includes all responses). Comments related to Product, Concept, and O&M were cited most frequently: about 20 percent of the comments were categorized in each of these three areas, respectively. O&M, Staffing, Communication, and Evaluation received between eight and nine percent of the responses. Tools received only four percent of the comments in Section 5. Since the responses were open-ended, the content area signifies only the frequency of responses by category, not the content of responses. These tables were useful primarily for identifying the relative importance of key content areas or themes. Responses within categories were further summarized and analyzed. See Appendix A for specific interview guide questions.

Section V Analysis

All Responses	Frequency	Percent
Product	69	21
Concept	61	19
O&M	55	17
Staffing	30	9
Communications	28	9
Evaluation	27	8
Involvement	26	8
Culture Change	14	4
Tools	12	4
Resources	5	2
Other	1	0
Total Responses	328	100

5.1 (S)	Greatest Lessons Learned	
	Frequency	Percent
O&M	7	32
Staffing	5	23
Concept	4	18
Culture Change	2	9
Involvement	2	9
Communication	1	5
Other	1	5
	22	100

5.1 (T)	Most Effective Elements of STPO process	
	Frequency	Percent
Concept	3	20
Product	3	20
Involvement	2	13
O&M	2	13
Tools	2	13
Communication	1	7
Culture change	1	7
Staffing	1	7
	15	100

5.2 (T)	What Would You Do Differently?	
	Frequency	Percent
Product	12	26
Concept	9	20
Communication	7	15
Involvement	5	11
Tools	5	11
O&M	3	7
Staffing	3	7
Culture change	2	4
Total	46	100

5. 3	Recommendations to TALs and TLs	
	Frequency	Percent
Product	24	34
O&M	17	24
Communication	11	15
Staffing	7	10
Concept	6	8
Tools	3	4
Culture change	2	3
Involvement	1	1
Total	71	100

5.4	Advice to DOE Upper Management	
	Frequency	Percent
Concept	17	35
O&M	11	22
Involvement	8	16
Staffing	7	14
Product	4	8
Resources	1	2
Tools	1	2
Total	49	100

5.4 (S)	Advice to colleagues	
	Frequency	Percent
Product	7	26
Involvement	5	19
O&M	5	19
Concept	4	15
Culture change	3	11
Staffing	2	7
Resources	1	4
	27	100

5.5	How well has process worked?	
	Frequency	Percent
Concept	6	29
Product	5	24
Culture change	3	14
O&M	3	14
Staffing	3	14
Involvement	1	5
	21	100

5.6	Other Comments	
Product	15	29
Concept	12	23
Communication	8	15
O&M	7	13
Resources	3	6
Culture change	2	4
Involvement	2	4
Staffing	2	4
Tools	1	2
	52	100

APPENDIX D

STPO STATUS CHARTS

Hanford SAS Headcount

September 1992

737 Staff

March 1994

541 Staff

Projected
October 1994

375-425 Staff

Security Transition Program Office ——— DOE Richland Operations Office

Hanford Patrol Staffing

SAS Crosscut Budgets

FY 1992

FY 1994

**Projected
FY 1995**

\$66.4M

\$48.5M

\$37.1M

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1992

May
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Projected
October 1994

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